BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, NOVEMBER 24th, 1934

THE CAUSATION AND TREATMENT OF OEDEMA*

BY

T. IZOD BENNETT, M.D., F.R.C.P.

PHYSICIAN WITH CHARGE OF OUT-PATIENTS, MIDDLESEX HOSPITAL, ETC.

The causation of oedema is one of those problems which have given rise to acute controversy in physiological and pathological circles for generations. Even to-day the mechanism is in several ways obscure; the disciples of many opposing schools continue to produce experimental support for their individual theories, and at times controversy is accentuated by the invocation of national patriotism and personal honour.

Oedema is a physical sign indicating an excess of fluid in the tissue spaces. It is met with clinically as a condition calling for treatment chiefly in cases of cardiac failure and of renal disease, and because of the importance of these two conditions it is with them that this opening paper will be principally concerned.

For oedema to be present there must in every case be a greater passage of fluid into the tissue spaces than out of them, and it may be laid down as a primary rule that the problem can only be understood if attention is concentrated on the forces which are in action in the immediate region of the tissue spaces and the walls limiting them, and that the shifting of consideration to other fields such as the kidney, the heart, or other special tissues of the body can only create confusion

The tissue spaces lie between numbers of living cells, and always contain a certain amount of fluid consisting of water, some crystalloids, and dissolved gases, with at most a very small trace of protein. The blood in the capillaries is separated from the fluid in the tissue spaces only by the extremely thin capillary wall, which permits fluid both to enter the tissue spaces and to return thence to the interior of the capillary. Also lying in immediate proximity to the tissue spaces are the terminations of the lymph channels, formed by completely closed tubes with extremely thin walls, affording little opposition to the passage of fluid. In normal conditions water with dissolved crystalloids and gases passes through the capillary wall into the tissue spaces, and is largely reabsorbed with CO_2 added to it and oxygen and glucose removed, while a certain amount of fluid passes from the tissue spaces into the lymphatics and travels ultimately up the lymphatic system. Blockage in the lymphatic system produces a form of oedema well known in certain pathological conditions but sufficiently rare to be outside the scope of the present discussion.

In order to understand the commonest forms of oedema we must confine our attention to the examination of those forces which regulate the passage of fluid backwards and forwards through the capillary wall, and however complex the problem of cedema may seem it must surely be admitted that these particular forces are now rather fully understood. Only two are of great importance: (1) the intracapillary blood pressure; and (2) the colloid osmotic pressure of the plasma proteins.

It is possible to explain nearly every form of oedema on the assumption that the thin capillary wall acts as semi-permeable membrane permitting the free passage of crystalloids, of which the diffusible ions will arrange themselves on the two sides according to the fundamental laws laid down by Donnan. The intracapillary blood pressure is the great force which propels fluid through the capillary wall into the tissue spaces. This transudation is a natural process of constant occurrence in health. Exact knowledge of the subject is largely due to the work of Krogh, and more recently of Landis and Drinker. Landis has shown that as the blood passes from an arteriole to a venule through a capillary the pressure falls from 27 mm. of mercury to about 13 mm.

If we inquire what conditions can increase the intracapillary pressure and so tend to increase the amount of fluid passing into the tissue spaces, we immediately encounter certain important facts. We find, for example, that in conditions of high blood pressure in the general arterial system—that is, in cases of hypertension and many cases of nephritis—there is no corresponding increase in the capillary pressure, a fact which corresponds with beautiful precision with the well-known fact that hypertension often exists for years without the appearance of oedema. It is, indeed, when hypertension has produced cardiac failure that oedema appears; or again it is in cases of valvular disease of the heart with cardiac failure that we encounter oedema. The explanation appears simple: it is increase in intracapillary pressure coming from the venous end of the capillary which produces oedema in these circumstances. Here we need not necessarily suppose that there is any increased transudation of fluid through the capillary wall; the assumption that the normal return of fluid into the capillary is impeded is sufficient to account for the oedema.

Colloid Osmotic Pressure

We owe to Starling our knowledge of the importance of colloid osmotic pressure. It is nearly forty years since he demonstrated that the presence of proteins in the blood serum is responsible for the osmotic attraction of fluid from the connective tissue spaces back into the capillaries. The term "colloid osmotic pressure" has come into general use, and there is no need at present to enter into discussion of the exact nature of this force, beyond pointing out that it is due partly to the true osmotic pressure of the total colloids and partly to the unequal distribution of diffusible ions, or, in other words, to a Donnan effect.

The colloid osmotic pressure tends to counteract the intracapillary blood pressure, and is a constant drag on the passage of fluid through the capillary wall. At the arterial end of the capillary the blood pressure is sufficient

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

to overcome this, and water and crystalloids pass through, but as one proceeds along the capillary towards its venous end this pressure becomes less and less, and concentration of the colloids leads to a steady increase in the reverse factor of osmosis. In this manner the transudation of fluid is first arrested, and later on there is an actual return flow from the tissue spaces into the capillaries. If for any reason the colloid osmotic pressure falls there will be both an increased tendency for fluid to pass out of the capillary and a greatly lessened force of attraction to drag fluid back from the tissue spaces.

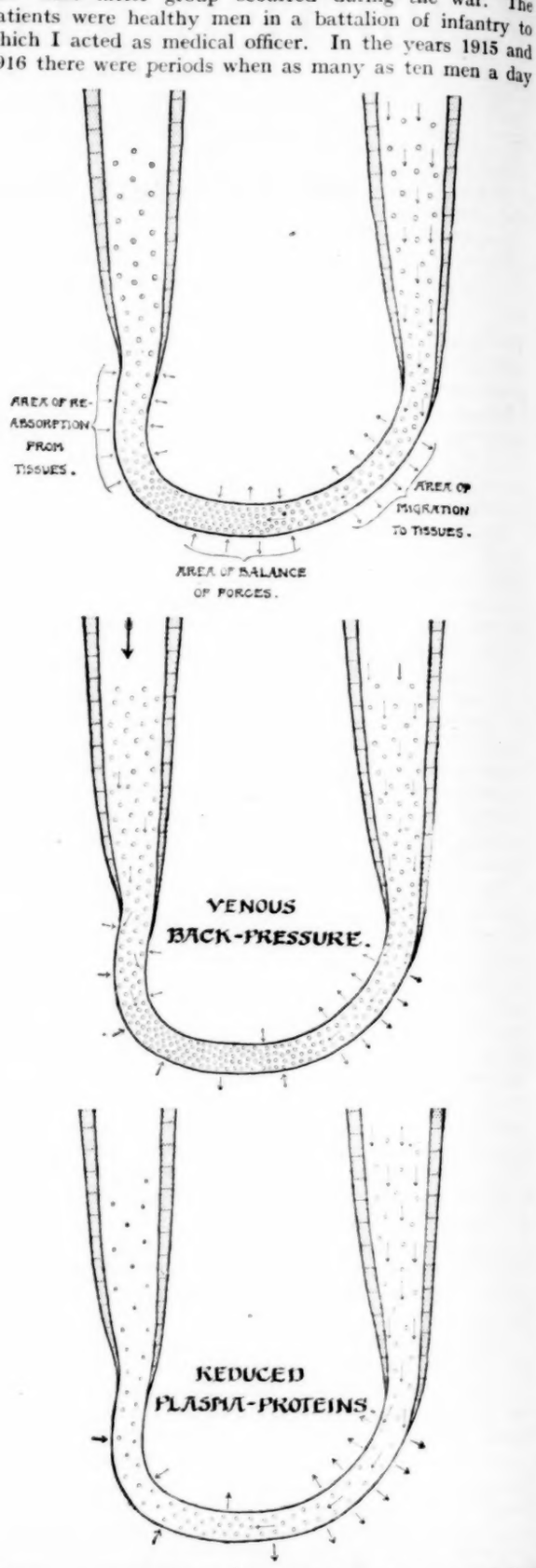
Such a fall in colloid osmotic pressure is brought about if for any reason the proteins in the blood plasma are diminished. This occurs notably in those pathological states in which large amounts of protein escape into the urine. It does not matter whether one is confronted with a heavy albuminuria following acute nephritis, or whether the pathological condition falls into that group which some of us refer to as " nephrosis " ; in any such circumstances the colloids of the blood will be diminished, and, albumin being many times more powerful as regards the osmotic pressure of its molecule than is globulin, it will follow that a relative diminution in the albumin of the plasma will have an even greater effect than if there is merely a lowering of the total serum proteins.

The importance in this conception of the role of the plasma proteins in regulating oedema has been recognized following the work of Albert Epstein of New York. It is true that by his experimental work Starling made himself the precursor of Epstein ; it is also true that Bright, over a hundred years ago, suggested that albuminuria was the cause of oedema, but to Epstein must be given full credit for the present-day conception. There is still much controversy on this subject, but it is doubtful whether anyone conversant with the work of Krogh, of Govaerts, of E. H. Fishberg, or of Moore and van Slyke can remain sceptical as to the extreme significance of this factor. A number of observers, notably Leiter, Barker, and Kirk, have produced experimental oedema in animals by repeated bleeding followed in each instance by reinjection of the red cells in normal saline in such a manner that great depletion of the plasma proteins, without anaemia, has been produced. Bennett, Dodds, and Robertson were able some years ago to describe a series of cases in which a similar loss of serum proteins had occurred into the peritoneum, the stomach, and elsewhere in men, with oedema formation without evidence of any renal element being involved.

The Capillary Wall and Acute Nephritis

I have not yet referred to the importance of the capillary wall in the production of oedema ; this omission has been deliberate. It is true that if the capillary wall is damaged the passage of fluid into the tissue spaces must be rendered easier, but this applies to the passage of fluid in both directions. On the other hand, increased permeability of the capillary wall may lead to loss of protein from the blood plasma, and so to a disturbance of the colloid osmotic balance. It is quite probable that in certain states, among which acute nephritis may be included, this factor is of some importance. Acute nephritis is, by its very nature, a disease which does not frequently come under the observation of any clinician, and writers such as Robert Platt have perhaps overemphasized those examples of the condition in which extreme oedema has rapidly occurred without (so it is asserted) any appreciable diminution in the plasma proteins.

I can only say that, on the one hand, I have often been impressed by the frequency with which acute nephritis occurs without any appreciable appearance of oedema, and that, on the other, I retain a vivid memory of the only large group of cases of acute nephritis ever seen by me. This latter group occurred during the war. The patients were healthy men in a battalion of infantry to which I acted as medical officer. In the years 1915 and 1916 there were periods when as many as ten men a day



Diagrams to represent the force regulating the passage of fluid between capillaries and tissue spaces. The blood pressure is represented by arrows within the vessel, plasma proteins are represented as minute globules.

had to be sent away from the front line with acute nephritis. The diagnosis was often made by the late Sergeant Needham, who, during our daily round of the trenches, would observe a man to be puffy under the eyes, and would call him down from the fire-step. On returning to the battalion aid post it would be demonstrated not only that the urine contained albumin, but that it was so full of albumin that, after boiling, the test tube could often be reversed without spilling. I have never seen such cases before or since, and they are quoted now to show that there is at any rate one group of cases of acute nephritis in which an immediate and tremendous loss of protein in the urine occurs.

The problem of the relative importance of the capillary wall in the production of oedema remains obscure. It is probable that in certain types of oedema, and particularly in urticaria, it is of great importance, but it is still more probable that in the two great groups of oedema encountered in cardiac failure and in renal disease the part played by the capillary wall is passive and unimportant.

The Importance of Sodium Chloride

The importance of salt in producing water retention in the tissues has been recognized by the medical profession for thirty years. At the beginning of the present century the late Professor F. Widal drew attention to the manner in which oedema can be influenced by the addition or withdrawal of salt from the diet. To this great physician we owe in large part the revival of interest in the chemical aspects of renal disease. It is, however, somewhat unfortunate that the conception of two functionally different types of pathological kidney—the one retaining nitrogenous substances and the other retaining salt and water—should have resulted from the researches of his followers, and become widespread. Not one, but a series of papers would have to be given in order to review all the work that has been done on this subject. Here it can only be said that the theory that nephritis creates a barrier to the passage of salt through the nephrons is no longer tenable.

But it remains true that salt is provocative of oedema through some property of holding water in the tissues. It must be borne in mind that salt possesses this property in cases of cardiac as well as of renal oedema, and it must further be borne in mind that the work of the late L. Blum has demonstrated that it is the sodium and not the chlorine ion which chiefly possesses this property.

Treatment of Oedema

The oedemas of cardiac and of renal origin are of such importance that it is not proposed to deal with the treatment of other types. Apart from cases in which there is local obstruction to a vein by thrombosis, adhesions, or pressure, right-sided heart failure provides the purest example of oedema due to increased pressure at the venous end of the capillaries. The regularity with which the relief of cardiac failure is followed by the disappearance of oedema is in itself very strong indirect evidence in favour of the theoretical considerations which have just been discussed.

Considering, in the first place, oedema of purely cardiac origin, we must recognize that a generalized oedema arising in this manner implies failure of the right side of the heart, and that this may occur with valvular disease, with a myocarditis of infective origin, or as the result of prolonged hypertension. Without discussing these groups individually, it may be said that any factor which diminishes the output of the right heart will necessarily tend to create congestion in the systemic venous circulation, and, conversely, it may be said that any treatment which tends to improve the output of the right ventricle will tend to lead to an amelioration of such cardiac oedema. For these reasons prolonged rest is essential, and when factors such as auricular fibrillation are present digitalis is usually very valuable. Digitalis, of course, finds its most important indication in conditions of auricular fibrillation with right-sided cardiac failure, and in recent years many of us have found that the drug can most easily and effectively be given in the form of the powdered leaf. The one-grain pills of this preparation retain their potency even when kept for a long time, and make a very convenient medium for administration. When using this preparation one is relieved of anxiety as to the potency, as to the possibility of the drug being destroyed by other substances given with it, and of the danger of faulty measurement. It is usual to give at the outset from 6 to 10 grains to a patient of average size, and to reduce this gradually as the digitalis effect becomes evident.

In all cases of generalized oedema successful treatment demands a careful record of progress from day to day. It is very important to be able to judge at any time whether the oedema is waxing or waning. This can be accomplished either by the accurate weighing of the patient or by an accurate record of the water balance. Patients are often so ill, and good weighing apparatus is so expensive, that the former course is scarcely practicable ; but estimation of the water balance is a relatively simple procedure, which should be carried out in all cases, both in private and in hospital. It is only necessary for the nurse or relative in charge of the case to keep an exact record of the amount of fluid taken by the patient, and to measure the volume of urine passed. The patient should be asked to pass urine just before the beginning of each official day—say at 8.30 a.m.—and this should be added to the urine of the previous day. It is well to place every patient on a fixed daily intake of fluid, which must include all fluids with the necessary allowance for the water contained in fruit, ice-cream, etc. A limit of 30 oz. daily can be imposed with no hardship ; in severe cases of oedema this may be cut down to 25 oz., or even to 20 oz. ; restriction below this point can only be obtained at the cost of considerable discomfort.

The next point of importance in the treatment of most generalized oedemas is that a salt-free diet should be imposed ; salt must be forbidden at all meals, and the salt used in cooking must be eliminated. Bread is sometimes a difficulty, because ordinary baker's bread contains appreciable quantities of salt. Salt-free unleavened bread can now be readily obtained from Jewish caterers. The imposition of a salt-free diet implies a regime calling for considerable ingenuity if the diet is not to be unpalatable ; the use of lemon juice and of sodium-free salt is a considerable help.

The Mercurial Diuretics

Reverting to the treatment of the oedema of cardiac failure: a salt-free diet having been imposed, the water balance correctly determined, and digitalis therapy pushed to the limits of its utility, it frequently happens that cardiac dropsy persists. A certain degree of improvement has been achieved, but the patient remains partially waterlogged. In such cases the new mercurial diuretics are often of great value. It is no exaggeration to say that these substances represent the greatest advance in the treatment of cardiac failure by drugs since the introduction of digitalis. It has been argued that to remove water from the tissues of a patient does nothing to improve his myocardium ; it is very doubtful whether there is even academic justification for such a statement, but even if it were so no patient would hesitate to choose between lying in bed waterlogged with oedema and leading the life of an invalid who is able to get about a little and is free from superfluous water.

It is unnecessary here to enter into the mode of action of these diuretics, beyond saying that there is strong evidence to show that their main action is a direct stimulation of the kidney to secrete more urine, that there is no evidence as to any harmful cardiac effect, and that, in ordinary dosage, the renal effect is not dangerous. There were so many unfavourable reports concerning novasurol that numbers of clinicians were discouraged at the outset, and its use was largely abandoned. Concerning salyrgan experience tells a different tale. There are very few contraindications to its use, and it seems to be extremely safe. Its effect is enhanced when it is given in conjunction with ammonium chloride, 15 grains of which should be prescribed thrice daily for forty-eight hours previous to the injection, by the intravenous or intramuscular route, of 0.5 to 2 c.cm. of salyrgan.

A typical result is shown in the accompanying chart, which was obtained from a patient admitted to the Middlesex Hospital suffering from severe hypertensive cardiac failure with anasarca. Digitalis had been pushed for many weeks in the patient's home, but he remained completely bed-ridden and helpless. On admission he was placed on a salt-free diet, and fluids were restricted to 30 oz. daily. Ammonium chloride was administered, and after three days the first intravenous injection of salyrgan was given, and the chart shows how this and subsequent injections produced responses varying from 50 to 180 oz. of urine. The net result was that within three weeks over 50 pints of superfluous fluid had been removed from this patient, who was able to return home infinitely better than before.

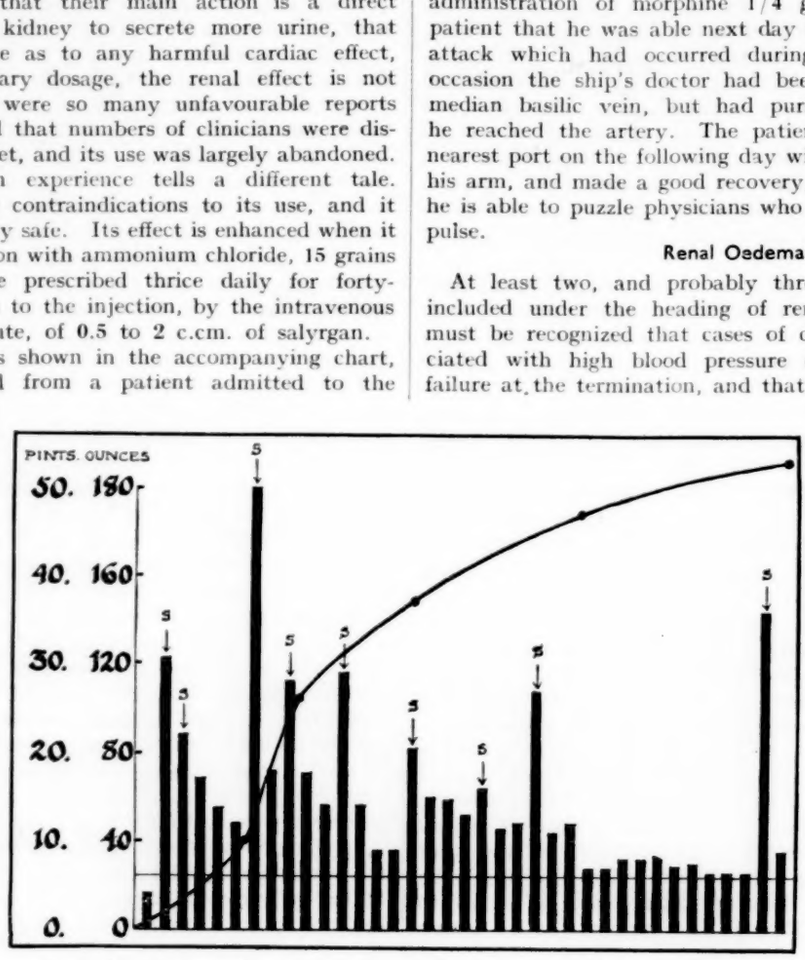


CHART I.—Effect of salyrgan on urinary output in cardiac failure with oedema. Fluid intake 30 oz. daily; 1 to 2 c.cm. of salyrgan given intravenously on days marked "S"; urinary output in ounces indicated by vertical columns; total diminution in pints of body fluid during treatment indicated by curve.

Before leaving the subject of cardiac failure a word must be said concerning a somewhat rare but very important form of oedema—namely, the acute pulmonary oedema encountered in sudden left-sided ventricular failure. In cases of hypertension the hypertrophied heart will not infrequently, after years of favourable effort, suddenly give way. Such sudden cardiac collapse often manifests itself by pure left ventricular failure, a clinical syndrome characterized by attacks of cardiac asthma with paroxysms of dyspnoea often occurring at night, by dilatation of the left ventricle, and by the appearance of moist sounds at the bases of the lungs. In extreme cases there may be copious expectoration of pink, frothy sputum, and dyspnoea is often of extreme violence and terribly alarming to the patient and those around him. The recognition and treatment of such cases is important. Morphine and venesection are the sovereign remedies, the immediate application of which has often saved life in what is one of the most important medical emergencies occurring in general practice. It was recently my experience to see this condition in a patient in whom generalized vascular disease had produced thrombosis of many of the peripheral veins to such an extent that venesection was very difficult. We were able, however, to open a vein after dissection, and the removal of 15 oz. of blood, together with the administration of morphine 1/4 grain, so revived the patient that he was able next day to describe a previous attack which had occurred during a cruise. On that occasion the ship's doctor had been unable to find the median basilic vein, but had pursued his efforts until he reached the artery. The patient was landed at the nearest port on the following day with a tourniquet round his arm, and made a good recovery, although to this day he is able to puzzle physicians who cannot find his radial pulse.

Renal Oedema

At least two, and probably three, varieties must be included under the heading of renal oedema. First it must be recognized that cases of chronic nephritis associated with high blood pressure often exhibit cardiac failure at the termination, and that this group sometimes presents great difficulties of exact diagnosis and classification. Cardiac hypertrophy is usually present, but the systolic blood pressure may have fallen sufficiently to confuse matters, although the diastolic pressure is generally maintained at an abnormally high level. There is some albuminuria, but it may be impossible to decide whether this is the result of renal changes, or whether it is merely the slight albuminuria which accompanies the disordered renal circulation of cardiac failure. It must be noted that actual renal failure tends to diminish rather than to increase oedema, because polyuria is one of the earliest and most striking effects of declining renal function, and will tend to drain off superfluous water from the tissues. In chronic nephritis with high blood pressure oedema is not infrequently of complex origin, being partly cardiac and partly renal.

True renal oedema is seen in the condition sometimes described as "nephrosis," and in those cases of undoubted nephritis characterized by what is sometimes known as "the nephrotic syndrome." In such cases there is long-standing albuminuria of considerable degree, with the result that the plasma proteins are greatly reduced and oedema appears. It would be out of place here to discuss at any length the conception of nephrosis, beyond saying that this envisages a group of patients in whom there is no rise of blood pressure, no change in the retinae, no history of haematuria, no nitrogen retention, no impaired renal function, nor any objective sign of disease of the kidneys beyond albuminuria, that this group exhibits lowering of the protein content of the blood, particularly as regards the albumin fraction, and that this diminution leads many of them to develop oedema. It is believed that these patients live for years, that many of them recover completely, that, if they die, it is usually from pneumococcal peritonitis or from some other generalized infection, and that the kidneys, when examined, show

glomeruli which are practically normal, with convoluted tubules exhibiting degenerative changes.

The original conception of Epstein, that these cases were not of primary renal origin, but represented some disorder of metabolism, has not been confirmed, and although it still remains impossible in many cases to demonstrate a glomerular lesion the general opinion to-day is that the albuminuria in nephrosis must represent an increased permeability, and so an abnormality of the glomeruli. On the other hand, the fundamental conception of Epstein that the oedema of these cases is the direct result of the leakage of albumin from the blood plasma has become more and more firmly established. As regards prognosis the problem remains most difficult ; all of us who have had much experience have seen some of these patients, after a long course in which albuminuria and oedema were the sole manifestations, suddenly begin to develop hypertension and proceed to a uraemic termination. We do not know whether the cases were misdiagnosed as nephrosis at the outset and were really extremely subacute cases of glomerular nephritis, or whether, as believed by Volhard and Fahr, it is possible for chronic nephrosis to proceed to a condition in which there is sclerosis of the kidney. In this connexion it is notable that A. M. Fishberg, in his latest work, states that he has never seen an example of nephrotic contracted kidney.

Case 1.—*Male, aged 42. Albuminuria Six Years*

	1929	1930	1931	1934
Urea	45	31	38	33
N.P.N.	41	30.6	29	31
Ca	10.0	9.8	8.6	10.9
Cholesterol	167	258	195	205
Alb.	4.4	2.74	2.6	4.1
Glob.	2.1	1.57	2.1	2.1
Fibr.	0.5	0.3	0.2	0.3
Blood pressure	90/135	90/150	108/178	105/150

Case 2.—*Female, aged 38. Oedema for Fifteen Years*

	1932	1933	1934
Urea	28	19	33
N.P.N.	25	28	29
Cl	495	625	610
Ca	—	8.9	—
Phos.	—	3.3	3.2
Cholesterol	310	330	375
Alk. res.	59	52	—
Hb	14.9	14.7	17.0
Alb.	1.7	1.8	1.6
Glob.	1.8	1.9	1.9
Fibr.	0.5	0.4	0.6
Blood pressure	85/140	90/140	90/140

Nephrosis

Nephrosis is, in my experience, a rare disease. In collaboration with Professor E. C. Dodds I have been able to publish a description of several cases, together with post-mortem findings described by Professor S. L. Baker. My clinical experience includes two cases which have been under my observation for from three to five years, in one of which albuminuria has now been present for over six years, and in the other for over fifteen. Details of these cases are set out in the accompanying tables, from which it will be seen that there is no nitrogen retention in either case, and that otherwise their chemistry exhibits the hypercholesterolaemia, the lowered calcium, and the decrease in plasma proteins characteristic of nephrosis. In the more chronic case there has never been any suggestion of hypertension, but in the shorter case the blood pressure figures have during later years been somewhat disquieting. At the same time this patient remains in apparently perfect health ; he came to me showing nothing except a profuse albuminuria, which led to a progressive fall in the plasma proteins and ultimately to the appearance of oedema. The institution of a rigid salt-free diet and a cure of dechlorination at Evian cleared up the oedema. He has followed a salt-free diet for three years now, and when seen a few months ago was in excellent health, with only a persistent trace of albumin in the urine, and with plasma proteins which have returned almost to normal.

The other patient has been troubled with chronic oedema, waxing and waning in intensity for fifteen years. Albuminuria is always considerable, and the plasma proteins are continuously very low, the globulin figure being actually in excess of that for albumin. But she is able, by persisting with a salt-free diet, and with the occasional use of diuretics, to keep well enough to lead an ordinary sedentary life. Two years ago the oedema became much more severe in spite of these precautions. The administration of urea failed to relieve it. On my advice her doctor gave her several intravenous injections of salyrgan, with the result that the oedema completely disappeared, and she has remained practically free from it since.

Treatment of Nephrosis and Nephrotic Syndrome

The treatment of renal oedema in cases of nephrosis and of the nephrotic syndrome should aim at the removal of the increased permeability of the glomerular epithelium and replacement of the diminished plasma proteins. Unfortunately, we have no means of achieving either of these ends, although it is interesting to note that Hartmann, Senn, Nelson, and Perley have succeeded in removing the oedema in certain cases of nephrosis by repeated intravenous injections of strong solutions of gum acacia. On the other hand, the diet originally advocated by Epstein, which contains abundant proteins, especially those of vegetable origin, is strongly indicated in these cases, because not only is it necessary to supply sufficient material from which the body may produce new serum-albumin, but the absence of any tendency towards nitrogen retention makes it permissible to supply the blood with sufficient amino-acids to create the full quota of urea to act as a diuretic. A salt-free diet is essential, and the water intake should be limited to a figure compatible with comfort. Mild diuretics are desirable, and among these urea occupies an important place, and may be given either in capsules or dissolved in small quantities of lemonade during periods of increasing oedema. Thyroid extract has often been advocated, but my personal experience in this respect has been discouraging. Salyrgan is certainly of the utmost value whenever it is necessary to reduce oedema of crippling degree. It must never be forgotten that extensive oedema carries with it the constant risk of infection ; anyone who has had the experience of seeing a patient suddenly develop pneumococcal peritonitis or a spreading cellulitis will understand the importance of reducing nephrotic oedema whenever it becomes extensive. If this cannot be done with salyrgan or by other medical means it may be necessary to resort to the use of Southey's tubes or to drain the oedema by incision over the malleoli.

Treatment of Acute and Subacute Glomerular Nephritis

Treatment in glomerular nephritis must be very different from that of nephrosis and the nephrotic syndrome. In acute cases the utmost possible degree of glomerular rest

must be sought for. The cause of the oedema is somewhat obscure ; not only may it be a combination of increased intracapillary pressure and of lowered colloid osmotic pressure, but such factors as increased permeability of the capillary wall cannot be eliminated. Renal function is usually greatly disturbed, and there is nitrogen retention or great loss of the concentrating power of the kidney. In these cases the water intake must be carefully controlled, and the diet must not only be salt-free, but the treatment must consist of virtual starvation for as long a period as can be maintained without risk to the patient.

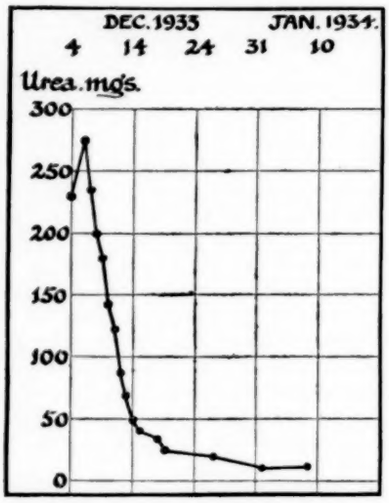


CHART II.—Blood analysis to show effect of starvation on blood urea in a case of acute nephritis.

The above diagram illustrates the effect of such treatment on a girl of 19, who was admitted to the Middlesex Hospital last December. On admission there was slight oedema in the form of puffiness below the eyes, and a considerable masked oedema manifested by an increase in weight of nearly a stone. The blood urea was over 200 mg., and the urinary output during the first week was below 10 oz. daily. Living on a water intake not exceeding 20 oz. and food limited to half an apple or some tiny pieces of orange daily, the blood urea was seen to fall rapidly to a very low level, and at the present time the patient appears perfectly normal, except that a trace of albumin is occasionally to be found in the urine.

The treatment of subacute and chronic nephritis with oedema is a matter of great difficulty. If cardiovascular change is minimal the therapeutic indications are closely similar to those in nephrosis ; if, on the other hand, haematuria is recurrent and evidence of impairment of renal function marked, treatment must be directed towards these rather than towards the actual oedema. It would be out of place to discuss this further here, beyond emphasizing that oedema becomes a minor manifestation in such serious cases as these.

It cannot be laid down too strongly that, on the one hand, the syndrome to which the term " nephrosis " may properly be given demands treatment with a diet generous in protein, and that substances such as urea and salyrgan are not contraindicated in these circumstances ; while, on the other hand, cases of undoubted nephritis with evidence of hypertension and impairment of renal function call for the greatest caution in the choice of the protein ration, require the avoidance of drugs which might stimulate the damaged kidney, and demand treatment calculated to remove infection and promote rest rather than merely to relieve oedema.

Summary

Oedema is a physical sign indicating an excess of fluid in the tissue spaces. Two great factors are chiefly responsible for the occurrence of oedema: (*a*) changes in the intracapillary blood pressure ; and (*b*) lowering of the colloid osmotic pressure of the plasma proteins.

Increased permeability of the capillary wall is probably important in the production of oedema of the urticarial type ; it is of possible importance in cases of acute nephritis. Sodium chloride is not a causal factor in the production of oedema, but is provocative of the condition, in that it tends to hold water in the tissue spaces rather than in the circulation ; the sodium and not the chlorine ion is responsible.

As regards treatment, cardiac oedema demands prolonged rest, digitalis therapy in appropriate cases, a salt-free diet, and the employment of mercurial diuretics in resistant cases. In these, as in all cases of oedema, accurate record of the water balance is important. Acute pulmonary oedema tends to occur in cases of left-sided cardiac failure, and is an indication for venesection and the administration of morphine.

Renal oedema includes two and possibly three varieties: (*a*) the type seen in terminal cases of nephritis with hypertension ; (*b*) the type seen in cases of " nephrosis " and the " nephrotic syndrome " ; and (*c*) the type seen in cases of acute nephritis. The oedema of nephrosis and the nephrotic syndrome is due to loss of protein from the blood plasma, and calls for a diet which is salt-free and relatively rich in protein. Mercurial diuretics are not contra-indicated in resistant cases. The oedema of glomerular nephritis requires very cautious treatment. In the acute phase virtual starvation is necessary ; in chronic cases careful judgement is required for the accurate regulation of the protein in the diet, and the avoidance of anything that may further damage the kidney.

I am greatly indebted to Professor E. C. Dodds and to the staff of the Courtauld Institute of Biochemistry for many of the chemical analyses quoted in this paper.

BIBLIOGRAPHY

Barker, M. H., and Kirk, E. J.: *Arch. Int. Med.*, 1930, xiv, 319.
Bennett, T. I., Dodds, E. C., Robertson, J. D., and Baker, S. L.: *Quart. Journ. Med.*, 1931, xxiv, 239.
Bennett, T. I., Dodds, E. C., and Robertson, J. D.: *Lancet*, 1930, ii, 1006.
Blum, L., and Van Caulaert: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1925, xlix, 1067.
Drinker, C. K., and Field, M. E.: *Lymphatics, Lymph and Tissue Fluid*, 1933.
Epstein, A. A.: *Journ. Exper. Med.*, 1914, xx, 334 et al.
Fishberg, A. M.: *Hypertension and Nephritis*, 1934.
Fishberg, E. H.: *Journ. Biol. Chem.*, 1929, lxxxi, 205.
Govaerts, P.: *Presse Méd.*, 1924, xxxii, 950 ; *Bull. de l'Acad. Roy. Méd. Belge*, 1928, viii, 33 et al.
Hartmann, A. F., Senn, J. E. M., Nelson, M. Y., and Perley, A. M.: *Journ. Amer. Med. Assoc.*, 1933, c, 251.
Krogh, A.: *The Anatomy and Physiology of Capillaries*, 1929.
Krogh, A., Landis, E. M., and Turner, A. H.: *Journ. Clin. Invest.*, 1932, xi, 63.
Leiter, L.: *Arch. Int. Med.*, 1931, xlviii, 286.
Moore, N. S., and van Slyke, D. D.: *Journ. Clin. Invest.*, 1930, viii, 337.
Platt, R.: *Nephritis and Allied Diseases*, 1934.
Starling, E. H.: *Journ. of Physiol.*, 1896, xix, 312.
Widal, F., and Lemierre, A.: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1903, xx, 678.

The number of suicides in Germany in 1932 numbered 18,934, or 29.2 per 100,000 inhabitants, as compared with 28.8 in 1931, 23.3 in 1913, and 21.2 in 1891, when the German statistics for suicides were first compiled. The number of suicides per 100,000 inhabitants in 1932 was 41.6 for males and 17.4 for females, as compared with 35 for males and 11.7 for females in 1913. The most frequent form of suicide was hanging, which was noted in 42.7 per cent. of the cases. Next, after a long interval, came poisoning by gas (15.9 per cent.), shooting (13.2 per cent.), drowning (11.6 per cent.), other forms of poisoning (7.1 per cent.), and other causes (under 10 per cent.).

CHRONIC CERVICITIS: ITS INFLUENCE ON THE URINARY TRACT AND ITS TREATMENT BY THE DIATHERMY CUTTING CURRENT CURETTE*

BY

J. C. AINSWORTH-DAVIS, M.A., M.D.Camb., F.R.C.S.Eng.

UROLOGICAL SURGEON, ROYAL WATERLOO HOSPITAL, LONDON

For the past eighteen months my attention has been more and more drawn to the fact that chronic cervicitis is responsible for certain diseases of the urinary tract the aetiology of which in the past has been only imperfectly understood. This conclusion is supported partly by clinical observation, partly by experimental evidence, and mainly by the results which have followed operative treatment of this focus of infection.

Any urological out-patient department is overcrowded with women whose chief symptoms are frequency, dysuria, pain in one or both loins, and varying degrees of backache, and with a history usually of having borne one or more children. Many are referred from the gynaecological department with a note: "Will the urologist please see and treat." Examination may reveal some urinary cause of the condition, such as cystocele, a stone in the bladder, or tuberculous kidney, but in the majority of cases no such abnormality can be discovered, the cystoscopic appearances being those of mild trigonitis, as shown by redness, swelling, and often pseudo-membranous patches on the trigone. Fig. 1 is a composite view of the bladder floor showing pseudo-membranous trigonitis. There is, as a rule, an associated chronic urethritis, the urethra being more tender than usual to the passage of an instrument, and if stretched with a straight Kollmann's dilator will not tolerate an expansion of more than about 25 degrees Charrière, as compared with the normal of 35 degrees.

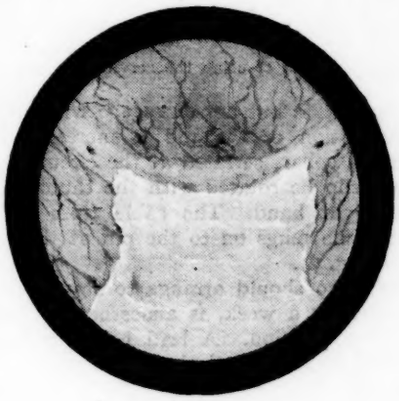


FIG. 1.

The changes in the upper urinary tract are seen by intravenous pyelography, which may demonstrate some degree of dilatation of the renal pelvis and upper inch or two of the ureter, and, in neglected cases, kinking of the pelvi-ureteral junction, due to inflammatory adhesions between the renal pelvis and ureter, and a varying degree of hydronephrosis from the increasing urinary obstruction. The urine is usually sterile, but may contain pus cells and *B. coli*, in which case renal specimens are collected by ureteric catheterization. Almost invariably, however, these are normal, which proves that the kidneys are not the source of the bladder infection.

*Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

The Association of Urological Inflammation with Genital Infection

The most significant thing in the majority of these women is the evidence of some degree of genital infection as shown by chronic cervicitis or cervical erosion, with or without some laceration of the cervix, and often by tenderness and thickening in the fornices. This association of genital and urological inflammations is so constant that one has almost been able to predict from the cystoscopic findings what the cervix would look like when viewed through a speculum; thus much suspicion has come to fall on this structure, and with it a desire to know more about its habits and their consequences.

This led some two years ago to a series of animal experiments carried out by Winsbury-White, and described by him in his Hunterian Lecture in February, 1933, under the heading of "The Spread of Infection from the Uterine Cervix to the Urinary Tract, and the Ascent of Infection from the Lower Urinary Tract to the Kidneys." Briefly they consisted of the injection of Indian ink or tubercle bacilli into the cervices of rabbits, rats, and guinea-pigs, and in killing the animals at periods of time varying from one hour to three weeks later. The pelvic organs and the soft parts of the posterior pelvic and abdominal walls were then sectioned in a serial manner and examined microscopically.

The Spread of Infection

Perivascular lymphatic spread was demonstrated both forward to the submucous coat of the trigone of the bladder and upward to the kidney by way of the base of the broad ligament, the hollow of the sacrum, the brim of the pelvis in the region of the common iliac vessels, the glands and lymph vessels of the renal hila, and, finally, by invasion of the renal substance through the fibro-fatty tissue surrounding the calyces. That the invasion was not haematogenous was proved by the absence of pigment or inflammation in the glomeruli and capillaries of the renal cortex which is characteristic of a blood-borne infection. That it did not spread up the walls of the ureters was shown by the complete absence of pigment in all sections made through them at successive levels. Winsbury-White considers that this ascending spread is supported by the clinical facts which are so constantly observed and which include tenderness in the fornices and backache, and by *x*-ray examination, which shows phleboliths on the pelvic floor and calcified glands along the posterior abdominal wall.

These experiments and the fact that frequency and dysuria in women are often very resistant to treatment, if this be directed solely to the urinary tract, emphasize the importance of visual inspection of the cervix and careful bimanual examination of the uterus and adnexa in the investigation of patients with urological symptoms. That they should be resistant to treatment becomes simple to explain when often no attempt is made to deal adequately with a cervicitis the significance of which has not been realized.

Frankl of Vienna has shown that the area of infection is not only the cervical canal, but also that part of the endometrium lying immediately above the internal os and known as the pars intermedia. Dr. Knott of Guy's Hospital, by sectioning a series of cervices removed by amputation by Mr. Lyle Cameron at the Royal Waterloo Hospital, has shown that the cervical glands, as a result of chronic inflammation, penetrate to a depth which rarely exceeds one-eighth of an inch. The complete cure of the condition, therefore, necessitates the removal of the lining membrane of the cervical canal and pars intermedia and all the subjacent glands.

Amputation or Cauterization of Cervix in Treatment

The methods of treatment which have been employed for chronic cervicitis are many and various. The non-surgical procedures, such as douches, local applications, tampons, ionization, ultra-violet light, and medical diathermy, are, on the whole, disappointing, and are usually followed by an early relapse when discontinued. Surgical methods are much more reliable, and the two procedures commonly employed are amputation of the cervix and dilatation of the cervix followed by cautery. In my opinion neither of these is satisfactory. Complete

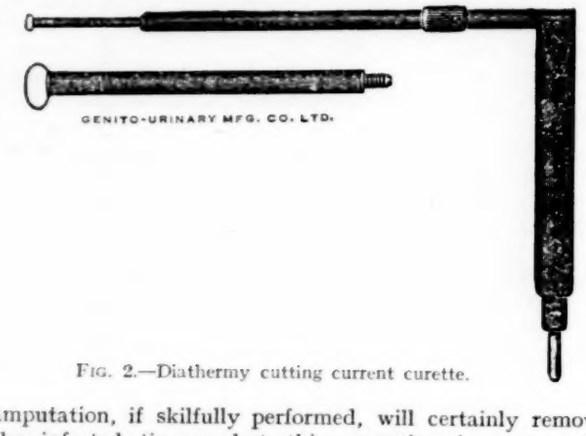


FIG. 2.—Diathermy cutting current curette.

amputation, if skilfully performed, will certainly remove the infected tissues, but this operation is not to be recommended in nulliparae or in younger women who are anxious to bear more children. Dilatation followed by cautery is a popular method, and although the whole of the affected area can be treated, the deep-seated glands are not completely destroyed, there is frequently but slight improvement of the local condition, and the treatment often has to be repeated. A number of women in whom hysterectomy was advised for other reasons were submitted either to partial amputation of the cervix or to dilatation and cauterization of the cervix before the uterus was removed. Microscopical examination showed that in both methods much infected glandular tissue was left behind, which explains the relapses that may follow these operations.

The Diathermy Cutting Current Curette

In my opinion the ideal way of complying with the essentials of treatment is to remove the glandular tissues completely by means of a wire loop activated by the diathermy cutting current. The method was, I believe, first introduced by Everard Williams, and a loop made for him which he called the "coniser." I have used this loop, but have not been satisfied with its results. On the principle of the McCarthy cutting loop for the removal of fibrous prostates through a cystoscope, and by means of which longitudinal strips of the gland can be resected, Mr. Schranz of the Genito-Urinary Company has made for me a series of cutting current curettes of various sizes. They consist of a fine tungsten wire loop, elliptical in shape and fixed at an angle of 30 degrees at one end of a well-insulated metal rod. The other end of this rod is threaded, and screws into a larger rod about four and a half inches long, which engages in a socket fixed at a right angle on an insulated handle in such a way that it can rotate but not disengage without a strong pull. The insulation of the rod is increased near the handle to form a collar, serrated at the circumference, by which it can easily be rotated with the thumb and index finger of the right hand. The cable from the cutting diathermy machine plugs on to the pin at the lower end of the handle (Fig. 2).

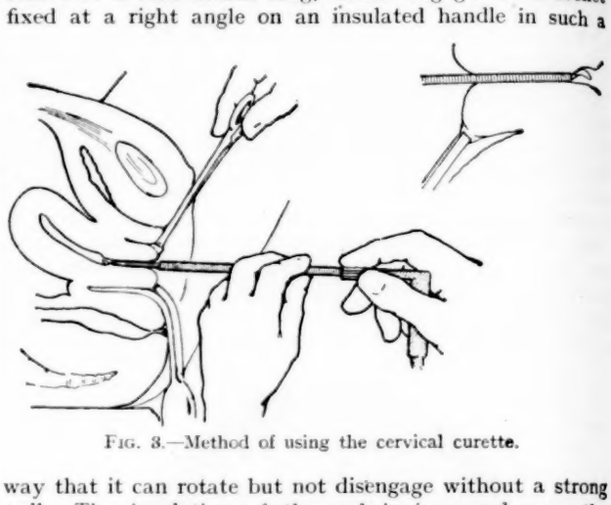


FIG. 3.—Method of using the cervical curette.

The patient, who should arrange to stay in a hospital or nursing home for a week, is anaesthetized and placed in the lithotomy position. A lead belt surrounding the waist is connected to the diathermy machine and constitutes the indifferent electrode. The skin and vagina are painted with surgical dettol, which is non-inflammable, towels are adjusted, a speculum inserted, the cervix grasped laterally with vulsellum forceps and pulled forward. The uterine cavity is explored with a sound, the cervical canal dilated to No. 8 Hegar (25 degrees Charrière), and dried as far as possible with gauze.

The strength of the current is adjusted (dial setting 4 on the genito-urinary endodiathermy machine), and the curette passed a quarter of an inch beyond the internal os (Fig. 3). The current is then turned on with the foot-switch, and a strip of pars intermedia and cervix removed from the roof of the canal, the instrument being steadied with the fingers of the left hand. Great

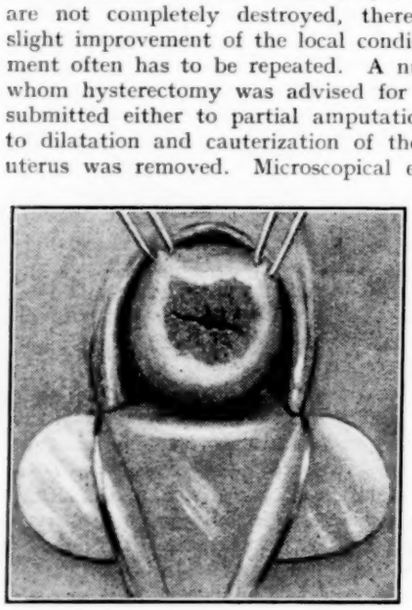


FIG. 4.

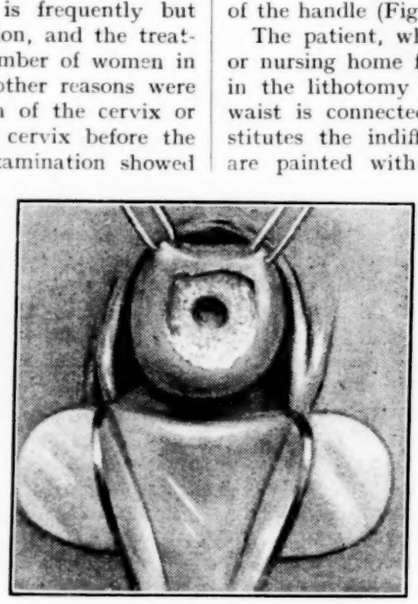


FIG. 5.

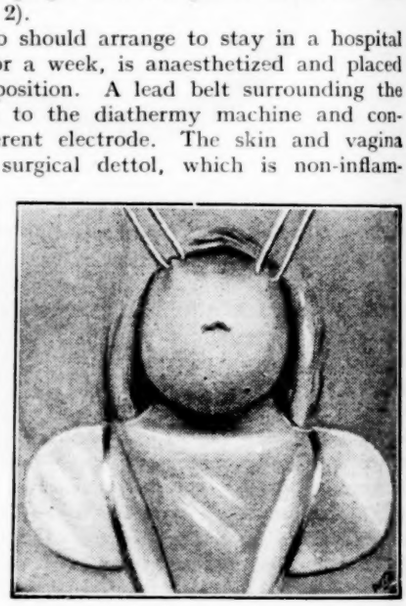


FIG. 6.

care must be taken not to allow the cutting loop to slip as it leaves the external os, and to remember at this point to turn off the current with the foot-switch ; also to hold the stem of the curette parallel with the cervical canal in order not to cut too deeply. The loop is so constructed that strips of lining membrane and underlying glands are removed in one piece if the instrument is correctly held. If for any reason it is necessary to make a deeper cut, the instrument can be tilted and tissue up to one-quarter of an inch in depth cut out. Strips are then cut from the sides, and lastly the floor. As each cut is made bleeding automatically stops from this area, until finally the endocervix is completely dry, which enables the operator to gain a perfect view and to deal with any small part which may have escaped resection. If an erosion is present it is excised by a larger cutting loop mounted on a bakelite handle, and the uterine cavity and cervical canal packed with gauze plugging soaked in 10 per cent. picric acid in absolute alcohol, which is removed eight hours later. The operation is completed by dilating up the urethra with a special pair of urethral forceps to 40 degrees Charrière in order to deal with the associated urethritis.

Saline douches are begun fourteen days later, and continued until the cervix is healed, which takes about two months. Intermittent dilatations of the urethra at fortnightly intervals are continued until a calibre of 40 degrees Charrière is attained without bleeding and without any appreciable resistance.

Figs. 4, 5, and 6 show a chronic cervicitis with an extensive erosion before treatment, directly after treatment, and three months after treatment. The results of this method of operative treatment for chronic cervicitis, especially if it has given rise to renal or vesical symptoms, I have found to be excellent, both clinically and pathologically.

Clinically the vaginal discharge, frequency, dysuria, renal pain, and backache disappear in the absence of any other gynaecological or urological cause, and in a series of eighty cases which have been followed up by Dr. Bryce Cooper and myself, both at the Royal Waterloo Hospital and in private, there was no distortion or contraction of the cervical canal. This was only to be expected, as excision of tissue by the diathermy cutting current is followed by a supple scar, which does not contract, and so resembles the results obtained in other parts of the body. Sufficient time has not elapsed for me to give an opinion on the effect that this treatment may have on conception and future pregnancy, but in one case in the series conception took place for the first time after twelve years of married life, and resulted in a normal pregnancy.

Pathologically a series of hysterectomies was performed by Mr. Lyle Cameron, in some cases immediately following the diathermy curette and in some six months later. By serial sections of the cervix Dr. Knott showed in the former that all the infected tissues had been removed, and in the latter that there were no signs of cervicitis.

In 1933 the British Science Guild began the Research and Development Lectures with the object of directing public attention to the importance of scientific research and of the utilization of its results in the service of mankind. Early in 1934 a proposal was made that the lectures should be given in the theatre of the Royal Institution, where special equipment and facilities exist for experiments and demonstrations, and arrangements were made by which the Guild had the use of the theatre on two occasions in May. Four further lectures have now been arranged, including one, on December 12th, at 9 p.m., by Dr. G. W. C. Kaye, on " Sound and Noise."

GAS GANGRENE RESTRICTED TO THE SUBCUTANEOUS TISSUES

REPORT ON A CASE

BY

MARGARET MOORE WHITE, M.B., F.R.C.S.

RESIDENT SURGICAL OFFICER, WEST NORFOLK AND KING'S LYNN GENERAL HOSPITAL

The following case is thought to be of sufficient interest to report on account of: (1) the limitation of the infection to the subcutaneous tissues of one limb ; (2) the good general condition of the child, maintained until pyogenic organisms made their appearance ; and (3) the uneventful recovery, whether due to the mild pathogenicity of the organisms or as a response to serum.

Case Record

A small boy, aged 7, ran a nail into the right leg, just below the knee, on February 10th, 1934. This was shortly afterwards withdrawn by his father. He was sent into hospital on February 14th as a case of cellulitis of the leg. On admission his temperature was 99.2°, and pulse 100. He did not look ill or toxic, nor did he seem in any great pain, but on questioning he said: " I'm all right in myself, but my leg hurts me."

On examination the entire right lower limb was very swollen, tense, of a whitish colour, and there was a very small perforating wound over the external tibial condyle above the site of origin of the anterior tibial group of muscles. There was no pitting or crepitus ; the oedema was solid. The circumference of the thigh was 15½ inches, as compared with 12 inches on the left side. An anaesthetic was given, and on cleaning the wound preparatory to excision of the skin edges a few bubbles of gas and a small quantity of pus issued from it. The surrounding tissues were gently pressed, and a few more bubbles and thin, brownish serum appeared. A smear was taken, the edges of the wound excised, and the latter left open.

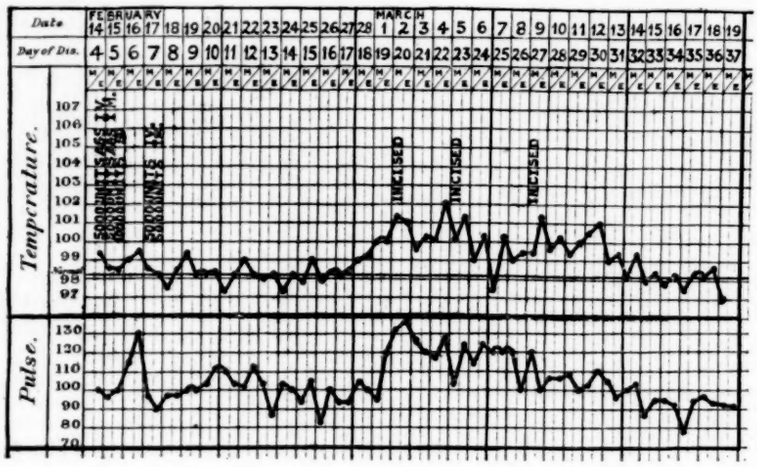
An immediate examination of the pus was made, and, on finding organisms typical of the *B. welchii* group, anti-gas-gangrene serum was given, 5,000 units intravenously and 5,000 intramuscularly. Hot fomentations were applied to the wound, and the leg placed on a back splint. The child's general condition remained good, and the condition of the limb unchanged, the oedema not extending above Poupart's ligament. An *x*-ray photograph showed gas bubbles subcutaneously only in the region of the knee. A further 10,000 units of serum was given on February 15th into the subcutaneous tissues of the right thigh, and 5,000 intravenously with 5,000 intramuscularly on February 17th.

Up to February 28th the circumference of the thigh had diminished by one inch, the child was well and comfortable, and there continued to be a small sero-purulent discharge from the wound ; but on March 1st his temperature and pulse began to rise, and he complained of increasing pain on the inner side of the thigh. An inflamed indurated area was present along the inner side of the lower third of the thigh, which was very tender. Slight pitting oedema of the scrotum developed at this stage, but soon disappeared. On March 2nd an incision was made into the subcutaneous tissues along the inner side of the thigh and a small quantity of pus obtained, which was sent for pathological examination, the report being haemolytic streptococci only. Following this incision quantities of serum drained from the wound. Further incisions were made into the subcutaneous tissues in the now indurated areas in the popliteal region and inner side of the upper part of the leg on March 5th and 9th, and the small quantity of pus which was first obtained was soon followed by the discharge of large quantities of serum. Hot fomentations were applied and, later, eusol dressings. During the period of pyogenic infection the child had a raised temperature and pulse, but these became normal on March 14th, and he was discharged on the 19th. The limb was now 1/2 inch less in circum-

ference round the thigh than the other, the incisions were granulating in healthily, and the movements of the limb normal. On recent inquiry from his doctor it was learnt that the wounds soon healed, and the child has since remained perfectly well.

Remarks

On reviewing the literature on this subject I can find no statistics to show in what proportion of cases infection is confined to the subcutaneous tissues as above, but Choyce[1] mentions that it does occur. Thirty cases, however, have been reported of gas-gangrene infection following subcutaneous injections,[2 3 4 5] either given hypodermically or as subcutaneous salines, but in the majority of these cases the infection became rapidly generalized and death ensued, or the patients recovered only after immediate multiple incisions and the administration of serum.



IV = Intravenous. IM = Intramuscular. SC = Subcutaneous.

Perhaps Tissier's findings[6] may explain the mildness of the infection. Tissier, in an article written in 1916, described experiments to show that gas-forming organisms in themselves had little power to cause gas gangrene, but when in association with other organisms they rapidly produced the typical disease. He showed that filtered cultures of *B. welchii* or *B. oedematiens* produced no effects; inoculation of animals with either of these organisms alone produced a hard oedema, which slowly disappeared, but when there was added to these cultures growths of aerobic bacteria the effects of malignant oedema were noted. He also stated that the presence of devitalized tissue was the necessary condition for the development of gas infection.

On looking at this boy's temperature chart it will be seen that the onset of severe symptoms coincided with the first appearance of pyogenic organisms in the pus. Up to this time on three occasions anaerobic organisms only were obtained from the wound, but on the twentieth day after infection the pus obtained on incision over the indurated area on the thigh gave a growth of haemolytic streptococci, and at this time the child's general condition was not so good. The hard, solid oedema of the leg, with absence of crepitus, suggested that the infection was mainly by organisms of the *B. oedematiens* type, although both groups of organisms were demonstrated in the pus.

It is also interesting to note in the cases quoted that the patients who received their infections by subcutaneous methods were in hospital suffering from some pre-existent disease or from loss of blood, and that other patients in better condition, who were given injections at the same time with the infected agent, did not develop gas gangrene.[7] It seems strange in this case that, in the absence of devitalized tissue in a healthy child, gas gangrene should have developed at all, and it should be noted that at no time was there any evidence of infection extending beneath the deep fascia. How much of the child's good recovery was due to the early administration of serum or how much to the low pathogenicity of the organisms it is difficult to say.

In another case admitted to this hospital a few months ago, of severe compound fracture of the leg with much destruction of muscle, gas gangrene set in on the third day, although 12,000 units of anti-gas-gangrene serum had been given as a prophylactic dose on admission. It quickly subsided, however, following intravenous administration of large doses of serum and free opening up of the wound. A reappearance of gas infection of the leg on the forty-fifth day after the injury followed encasement in plaster, but subsided again after serum injection and exposure of the wound to the air.

My thanks are due to Mr. Lewin for permission to publish this case, and to Dr. Knott of Guy's Hospital, who kindly confirmed the pathological findings.

REFERENCES

[1] Choyce: *A System of Surgery*, i, 263.
[2] Anschütz: *Bruns' Beiträge z. klin. Chir.*, 1927, cxxxix, **129**.
[3] Landé: *Med. Klinik*, 1926, xxii, 924.
[4] Polèra: *Policlinico*, sez. Chirurg., 1932, xxxix, **57**.
[5] Maes: *Surg. Clin. of North America*, 1930, x, 789.
[6] Tissier: *Ann. de l'Inst. Pasteur*, December, 1916.
[7] Heuss: *Med. Klinik*, 1925, xxi, 470.

INTERFERENCE IN THE SCHICK TEST BY DIPHTHERIA ANTITOXIN INJECTION IN THE HUMAN SUBJECT

BY

R. B. MAYFIELD, M.B., B.CH.CAMB., D.P.H.LOND.

LATE ASSISTANT MEDICAL OFFICER, NORTH-WESTERN HOSPITAL, HAMPSTEAD; ASSISTANT MEDICAL OFFICER OF HEALTH, PLYMOUTH

The aim of this investigation was to find out how soon an injection of antidiphtheritic serum may be given to a suspected case of diphtheria after the performance of a Schick test without invalidating the result of that test.

Ker[1] (1924), in his presidential address to the Fever Hospital Group of the Society of Medical Officers of Health, gave an account of some work on this point. He assumed that all definite cases of diphtheria are Schick-positive at the onset of the disease, and, by testing such cases at varying intervals before the intramuscular injection of antidiphtheritic serum, he tried to find out how soon the serum had to be administered after the performance of the test in order to inhibit the positive reaction. He tested forty-seven cases two hours before the injection of serum, and of these forty-five yielded positive reactions and two were doubtful. Of nineteen cases tested one hour before the injection of serum, eighteen gave positive reactions and one a negative. The single patient reacting negatively died of circulatory failure within ten days after the test was performed, and it is possible that the circulation was already too depressed to respond to the stimulus of the test. Finally, fifty-six cases were tested immediately before the injection of serum, and of these forty-five had positive reactions, two were doubtful, and nine

were negative. He suggested various possible explanations as to why these nine cases reacted negatively. Two, for instance, were doubtful cases clinically, and in four there was some question as to the reliability of the test toxin. Nevertheless, nine out of fifty-six seems too high a proportion to be disregarded. Ker also reported results of seven Schick tests on cases of diphtheria immediately before the intravenous injection of antitoxin. Two of these reacted positively, four negatively, and one was doubtful.

Glenny and Hopkins[2] (1925) carried out similar tests on guinea-pigs. They found that the inhibition or reduction in size of a positive Schick reaction depended on the dose and the route of administration of a subsequent injection of antitoxin, and on the length of time that elapsed between the performance of the test and the administration of the antitoxin. For instance, a Schick reaction could be reduced to half its normal size either by giving 10 units of antitoxin intravenously thirty minutes, or 100 units intravenously ninety minutes, or 1,000 units intramuscularly forty-five minutes after making the test.

Nature of Investigation

In the present investigation it is assumed, as in Ker's work, that in the first few days of the disease all cases of diphtheria are potentially Schick-positive before receiving antitoxin. In making this assumption it is necessary to have strict standards by which to decide what is a case of diphtheria. The cases used for this work were a simple sample of those notified as diphtheria, and admitted to the North-Western Hospital, Hampstead, between November, 1932, and August, 1933 ; but only those which were undoubtedly diphtheritic from the clinical point of view, and which also yielded virulent cultures of *C. diphtheriae*, were considered to be proven cases of diphtheria.

Cases Receiving Intramuscular Serum

To begin with, only those patients who received all their antitoxin by the intramuscular route will be considered. Tests were performed as follows.

Group I.—Thirty-eight patients were Schick-tested immediately before an intramuscular injection of diphtheria antitoxin. Four of them were regarded as proven cases of diphtheria, and of these two gave positive and two negative reactions. Of the remaining thirty-four patients, fourteen yielded positive and twenty negative reactions.

Group II.—One hundred and fifty-one patients were each submitted to two Schick tests. In every case the first test took place one hour before, and the second immediately before, an intramuscular injection of antitoxin. Twenty-four patients were considered to be proven cases of diphtheria, and of these twenty-two reacted positively to both tests, and two were positive to the first but negative to the second. Of the remaining 127, eighty had positive reactions to both tests, fourteen were positive to the first and negative to the second, and thirty-three gave negative reactions to both tests.

Group III.—Three patients were each Schick-tested one hour before an intramuscular injection of antidiphtheritic serum. Two were looked upon as proven cases of diphtheria, and all three reacted positively.

Group IV.—Fifty-six patients were each submitted to two Schick tests. In every case the first test took place two hours before, and the second one hour before, an intramuscular injection of antitoxin. Sixteen patients were considered to be proven cases of diphtheria, and all of these gave positive results to both tests. Of the remaining forty cases, thirty-three were positive to both tests, one was positive to the first and negative to the second, and six were negative to both.

Table I shows the results of all Schick tests performed on patients who were regarded as proven cases of diphtheria, grouped according to the length of time the injection of antitoxin was delayed after each test. This table is concerned with Schick tests and not with patients. If a patient is in, say, Groups II or IV, the results of his two tests are shown separately, each in its appointed row.

TABLE I

Time Elapsing between Schick Test and Intramuscular Injection of Antitoxin	Number of Tests Made	Result of Test		% +
		+	−	
0 hours	28	24	4	85.7
1 hour	42	42	0	100.0
2 hours	16	16	0	100.0

It is assumed that all the patients who formed the experimental material for Table I were potentially Schick-positive before receiving antitoxin. Four of the twenty-eight tests made immediately before the intramuscular injection of antitoxin were negative. Therefore a Schick test made immediately before such an injection of antitoxin does not give a reliable index of the patient's state of immunity at the time the test was performed. On the other hand, all of the forty-two reactions in the next row were positive. This, of course, is far from proving that all cases of diphtheria, if Schick-tested one hour before an intramuscular injection of serum, would show positive results to that test. First, these were all cases in which there was no doubt as to the diagnosis of diphtheria on clinical grounds alone. They therefore tended, on the whole, to be more severe than the average run of cases, and it is possible that they were, correspondingly, potentially more strongly Schick-positive than the average run of cases. Secondly, forty-two is a very small number from which to draw general conclusions. As might be expected, in the sixteen instances where the antitoxin was delayed for two hours after the test all the reactions were positive.

The reactions in Groups II and IV lend themselves to further consideration, because when a patient is submitted to two Schick tests the first, if positive, acts as a control on the second. Table II shows the results of the Schick reaction on all cases which were tested twice, and which reacted positively to the first test. This table is not confined to proven cases of diphtheria, but also includes those in which there was room for doubt about the diagnosis, and others which were not finally diagnosed as diphtheria at all.

TABLE II

Groups	Both Tests +	First Test + Second Test −	Total	% Positive to Both Tests
II	102	16	118	86.44
IV	49	1	50	98.00

Table II reveals that out of 118 patients in Group II who reacted positively to the test made one hour before the intramuscular injection of diphtheria antitoxin only 86.44 per cent. gave positive reactions to the test made immediately before they received antitoxin. Of the fifty patients in Group IV who reacted positively when the antitoxin was delayed two hours after the test, all but one also yielded positive reactions when the interval between test and injection of antitoxin was only one hour. The fact that one of these fifty had a negative reaction to the second test suggests that the interval of one hour between test and antitoxin is not long enough to ensure that the result of the test is unaffected by the injected antitoxin. This is supported by the observation that in some of the Group IV cases which reacted positively to both tests the reaction to the second was weaker than the reaction to the first. (It should be mentioned that,

for the sake of simplicity, doubtful reactions were recorded as negative.)

Considering Tables I and II together, there is no doubt that the Schick test performed one hour before an intramuscular injection of diphtheria antitoxin, though subject to some extent to the nullifying influence of the injected antitoxin, yet possesses a high degree of reliability. It is further suggested that the test carried out two hours before the intramuscular injection of antitoxin is more reliable still, and can be accepted for practical purposes as giving a true index of the patient's state of immunity at the time the test was performed.

Cases Receiving Intravenous Serum

Fourteen patients who were considered to be proven cases of diphtheria were each Schick-tested twice, the first test one hour before, and the second immediately before, an intravenous injection of antidiphtheritic serum. Their Schick reactions are shown in Table III.

TABLE III

Time Elapsing between Schick Test and Intravenous Injection of Diphtheria Antitoxin	Number of Tests Made	Result of Test		% +
		+	−	
0 hours	14	1	13	7.14
1 hour	14	10	4	71.43

A comparison between Tables I and III reveals that the proportion of positive reactions to the test immediately before intramuscular antitoxin is about twelve times as great as the corresponding proportion in the intravenous series. The results of the tests made one hour before giving antitoxin show a similar but less striking difference. Tables I and III, therefore, illustrate in human beings the same principles which Glenny and Hopkins established in guinea-pigs in connexion with the length of time the antitoxin was delayed after carrying out the Schick test and with the route by which the antitoxin was given. There was no evidence, in the cases used in this work, that the inhibition of a positive Schick reaction depended on the number of units of antitoxin given. There was not, however, very much variation in the size of dose employed, the number of "inhibited" reactions was small, and there was considerable variation in the age and weight of the patients.

Conclusions

1. It is suggested that two hours is a sufficient interval in which to delay an intramuscular injection of antidiphtheritic serum after making a Schick test in order to get a reliable result to that test.

2. It has been demonstrated that antidiphtheritic serum is much more efficient in inhibiting a positive Schick reaction when introduced by the intravenous route than by the intramuscular.

I wish to express my thanks to Dr. A. Joe, medical superintendent of the North-Western Hospital, Hampstead, for suggesting the subject of this work, and for much helpful advice.

REFERENCES

[1] Ker, C. B.: Presidential Address (unpublished), Fever Hospital Medical Services Group, M.O.H. Society, October, 1924.
[2] Glenny, A. T., and Hopkins, Barbara: *Journ. Path. and Bact.*, 1925, xxviii, 261.

The verbatim report of the twentieth annual conference of the National Association for the Prevention of Tuberculosis, held in London in June, 1934, is now published, and copies (7s. 6d., post free) may be obtained on application to the Association at Tavistock House North, Tavistock Square, London, W.C.1.

A CASE OF EVIPAN PARALYSIS

BY

J. V. LANDOR, M.D., M.R.C.P.

AND

MOHAMED SALLEH, L.M.S.

Singapore

The following case is one of widespread paralysis following the use of evipan for general anaesthesia with no premedication, and as we can find no similar case in the literature we think it may be worth recording.

A Chinese patient, aged 29, was admitted to the Johore Bahru General Hospital on February 5th, 1934, complaining of swelling, redness, and pain in the region of the left knee-joint of four days' duration. The surface appearance suggested a cellulo-cutaneous erysipelas. On February 8th operation was decided upon, and performed under evipan anaesthesia. The one gram of evipan in the usual stock ampoule was dissolved in the 10.5 c.cm. of distilled water in the other stock ampoule. Nine c.cm. of this solution was given intravenously at 11 a.m. very slowly, stopping for a few seconds after every 1/2 c.cm. and taking six minutes to introduce the total 9 c.cm. The patient began to yawn after 2½ c.cm., and to snore after 4 c.cm. The operation was started at 11.10 a.m. and lasted seventeen minutes. An incision five inches long was made on the outer side of the left thigh, and a large abscess cavity was opened, evacuated of all pus, and irrigated; the abscess was found not to communicate with the knee-joint.

After the operation the patient was breathing normally and moving his eyeballs, but he did not recover full consciousness till 10.30 o'clock that night. During this long interval he made movements of the eyes, face, and limbs, and swallowing movements. His pulse was rapid (140), but had been nearly as fast before operation (134). An injection of strychnine 1/30 grain was given at 3 p.m. that day, and oxygen was then administered for half an hour because he was so long unconscious; coramine, as recommended by the manufacturers, was not available. At 10.30 p.m. he at last began to answer questions, and warm drinks were given. He was fully conscious next morning.

It was not until February 17th that the assistant surgeon in charge of the case noticed there was severe paralysis. The patient had in the meantime been gravely ill owing to his septic condition, and had not himself called attention to his paralysis; when questioned, he stated that it had been gradually coming on since the date of his operation, but had not been present before. On detailed examination there was flaccid paralysis of the trunk, so that the patient could not move himself in bed, of both lower limbs, and of the distal portion of the upper limbs. There was bilateral ankle-drop and wrist-drop. The knee-jerks, ankle-jerks, and biceps-jerks were absent; the plantar responses were flexor, and abdominal sutaneous reflexes present. There was no loss of control of the sphincters. Sensibility to touch and pain was diminished below the knees, but not affected in the upper limbs. Kahn test of the blood and of the cerebro-spinal fluid was negative.

General wasting of many muscles followed, with consequent loss of weight; by April the weight was down to 89 lb., but, unfortunately, it had not been taken earlier. On June 23rd, when recovery was almost complete, it was 100 lb. The septic condition of the leg gradually cleared up, although for several days after the operation it was spreading; the wound was healed by the middle of April, and all inflammation had then disappeared. There had been considerable pyrexia before the operation, but there was none after, except a temperature of 100° F. on the day following and a rise to a 100° on March 9th and 10th, which yielded at once to quinine. High fever occurred on April 22nd, with painful enlarged spleen and the appearance of blood and mucus in the stools; this subsided with quinine treatment in a week, and was probably malarial, though no parasites were found in the blood; there were no causative organisms in the stools.

For the paralysis the patient received massage, rhythmically interrupted sinusoidal current, and a general tonic of iron and strychnine; flexion and extension of wrists and feet

against resistance; and application of simple apparatus to prevent contractures. The paralysis gradually improved, and he was able to sit up by early April, and to walk slowly by the middle of May. By the middle of June his power was practically normal and his sensation tests also, but his tendon reflexes were still negative, and he still had very slight left-sided foot-drop.

Commentary

The manufacturers claim that no serious late consequences of evipan administration have been recorded, and in truth we have seen none in the literature we have consulted, though we have noticed one or two cases of early, though evanescent, toxic effects. The manufacturers quote authorities such as Ernst,[1] Specht,[2] and a committee of the Medical Research Council in London as warm advocates of evipan; Holtermann and Baetzner[3] declare it to be safe; Jarman and Abel[4] consider that the full dose is safe, though they mention low blood pressure as a contraindication. The patient in our case was admittedly very ill and emaciated before operation, but it is in just such cases that the manufacturers recommend full doses.

Willcox and others[5] report peripheral neuritis as one of the late toxic manifestations of the barbiturates, of which evipan is one, the chemical formula being *n*-methyl-C-cyclo-hexenyl-methyl barbituric acid; Willcox mentions toxic states as greatly enhancing the susceptibility of patients to the barbiturates, and this appears to be borne out by our case.

The patient was demonstrated at a meeting of the Southern Division of the Malaya Branch of the British Medical Association on April 26th, 1934, and it was suggested that the case was one of acute beri-beri, but the prolonged unconsciousness after the injection and the great loss of power in the trunk muscles were against such an explanation. We think it was an undoubted case of late paralysis due to evipan administration, and that the lesson to be learnt is that great caution needs to be taken regarding dosage in patients already toxic.

We are indebted to the Acting Principal Medical Officer, Johore, for permission to publish this case.

References

[1] Ernst: *Münch. med. Woch.*, 1933, No. 4.
[2] Specht: *Zentralbl. f. Chir.*, 1932, No. 5.
[3] Holtermann and Baetzner: *Deut. med. Woch.*, 1933, No. 2, and *Lancet*, 1933, i, 648.
[4] Jarman and Abel: *Lancet*, 1934, i, 511.
[5] Willcox: *British Medical Journal*, 1934, i, 417.

Two intensive post-graduate courses have been arranged by the American Medical Association of Vienna for the six weeks beginning February 18th, 1935. These courses will provide a general survey of the newest methods and principles in the fields of gynaecology and obstetrics and of ear, nose, and throat, approximately 150 hours of lectures and clinical instruction being devoted to each of these specialties. The cost of the entire course, inclusive of life membership fee to the association, will be 900 Austrian schillings (about S. 5.20 for one dollar or S. 2,615 for £1). This is to be paid in the form of two instalments, the first of which, 200 schillings, should accompany registration, and the balance paid upon beginning the work. Applications must reach Vienna not later than January 1st, and if the minimum number of six physicians is not reached by January 15th the registering members will be notified and their deposits returned. Intensive courses of like nature and at the same cost may be arranged at any time for a minimum of seven participants in any of the specialties. All instruction is in the English language, and given by leading Viennese teachers. Further information may be had from the American Medical Association of Vienna, Alserstrasse 9, Vienna, Austria.

Clinical Memoranda

GLUCOSE-INSULIN THERAPY AND VASOVAGAL ATTACKS

The syncopal attacks described by Sir William Gowers and called by him "vasovagal" have the following signs and symptoms. The attacks begin suddenly with a sense of oppression in the stomach or chest and difficulty in breathing. There is usually precordial pain—acute in some cases, a discomfort only in others—and accompanying this is a sensation of impending death "so intense that no recollection of its falsity in preceding attacks prevents the conviction of its present reality." There is no impairment of consciousness, but often a slowing of the mental processes. The vasomotor disturbance shows itself by symmetrical coldness of the extremities, tingling, and numbness. The pulse becomes small and may be almost impalpable, and the blood pressure falls. Shivering is common, and may amount to a definite rigor. All these symptoms were present in the following case.

Case Record

The patient, a woman of 58, had suffered from constant attacks of asthma for eight years, for which she had been treated in a variety of ways. In October, 1933, her myocardial condition seemed poor, and her blood pressure was low, though an electrocardiogram and a radiogram of the chest showed no signs of abnormality. She was exceedingly thin, and with a view to improving the general and myocardial nutrition ten units of insulin with two tablespoonfuls of glucose was given twice a day, as considerable improvement by this means of treatment in heart diseases has been reported from various sources (notably by Shirley Smith, *British Medical Journal*, April 22nd, 1933).

A very marked improvement in the incidence of the asthmatic attacks occurred, until in a short time she was entirely free from asthma. After a fortnight's freedom from symptoms she suddenly had a typical vasovagal attack, which within a few days was followed by a succession of such attacks, occurring so frequently that her life was despaired of. It was decided to discontinue the insulin-glucose treatment, and four-hourly injections of atropine 1/120 grain were substituted, and oxygen and adrenaline given at the times of the actual attacks. Within thirty-six hours of the commencement of these measures the sycopal attacks ceased, and she has not had one since, but the asthma promptly returned.

Discussion

As, presumably, some disturbance of the sugar metabolism was the starting-point of these attacks, as soon as the patient was sufficiently recovered blood sugar estimations were done, and it was found that she had a permanently low concentration of sugar in the blood, the highest point to which it rose after a carbohydrate meal being 0.89 mg. per 100 c.cm.

Dr. Cammidge, in an article in the *British Medical Journal* of May 3rd, 1930, drew attention to the existence of chronic hypoglycaemia, not as a rare curiosity, but as a state of frequent practical importance, and in four of the cases to which he referred convulsive attacks occurred which were preventable by glucose administration.

In the case in question large doses of glucose (without insulin), together with 5-minim doses of the tincture of belladonna three times a day, have, to all appearances, prevented any further vasovagal attacks and checked the asthma. As in the previous eight years of this patient's history neither belladonna nor any other treatment attempted had had any effect on her asthma, and as she had had no vasovagal attacks before the insulin was given, the case seems to have a definite bearing on the problem of the relation of Gowers's syndrome to asthma and of both to hypoglycaemia, and appears to show that there may be some connexion between these conditions.

SUMMARY

1. A brief summary of Gowers's syndrome is given.
2. A case is described where this alternated with asthma.
3. The two conditions in this case are considered to be subsidiary to a chronic hypoglycaemia of unknown—possibly suprarenal—origin.
4. Treatment of the hypoglycaemia relieved the asthma and stopped the syncopal attacks.

My thanks and acknowledgements are due to Dr. Forest Smith, who saw the case in consultation, and with whose permission I publish these notes.

Hurstmonceux, Sussex. L. SHILLITO, M.B., B.Ch.

TRANSPLANTATION OF A SINGLE URETER AS A MEANS OF RESTING A TUBERCULOUS BLADDER

Transplantation of the ureters in cases of ectopia vesicae or intravesical growth is a method of treatment proven and recognized. The following case illustrates, I believe for the first time, another use for this therapeutic measure.

CASE RECORD

An unmarried girl of 19, seen in September, 1932, gave a history of great frequency of micturition accompanied by considerable pain and smarting. Cystoscopy in the following month revealed both ureteric orifices much inflamed—more marked on the left side—but no other signs. A specimen of urine from the bladder and left ureter showed pus and tubercle bacilli in small numbers. A specimen from the right ureter showed normal urine. This latter finding was rather surprising, as the right ureteric orifice was definitely inflamed. A further specimen taken from this side a few days later again revealed normal urine.

In November, 1932, a left nephrectomy was performed and a small focus of caseation in a single calyx was revealed. The patient made an uninterrupted recovery, and, though her frequency and strangury were much improved, they never quite subsided. In 1933 she was still passing tubercle bacilli in the urine, though few in number, and was sent to Papworth Tuberculosis Colony, from which, feeling a little better, she discharged herself after about two months' stay. She was seen by me on several occasions after this, and a cystoscopy in the beginning of this year (1934) showed a definitely tuberculous condition of the right ureteric orifice, with advanced ulceration of the bladder. Her life was made miserable by frequent micturition, which occurred about every twenty minutes during the day and night. She lost about 2 st. in weight, and no type of drug, dietetic, or topical treatment appeared to have the slightest effect. She was kept in bed for a month without any improvement, though tying a catheter into the remaining ureter (the right) for five days brought welcome relief from frequency and pain.

In view of her pain and misery I felt that any means to relieve the frequency was justifiable, and after explaining the matter to her parents I transplanted the right (remaining) ureter into the sigmoid, by Coffey's second method, in March of this year. At operation the ureter was not appreciably thickened, and the operation was so easy that I did not tie in a ureteric catheter. Her recovery was uneventful, except for rather marked vomiting for the first two days. This I attributed chiefly to methylene-blue and hexamine pills, which I found her stomach totally incapable of retaining, although she tolerated neotropine well. A little urine was passed by the rectum on the first day, and a full amount by the third. The rectum rapidly accommodated itself to the urine, and within ten days of the operation her "frequency," now transferred to the rectum, became reduced to a two-hourly rhythm during the day, and her night sleep was interrupted only once for the bedpan.

She was discharged from hospital a month later. She is now (July) up and about, has put on over a stone in weight, and tells me she passes urine from the rectum only three or four times during the day, and not at all during the night. She feels perfectly well, and wishes to resume her work as a parlourmaid. She states that she cannot believe that for two years she was passing water every twenty to thirty minutes.

CONCLUSIONS

The following points are worth noting:

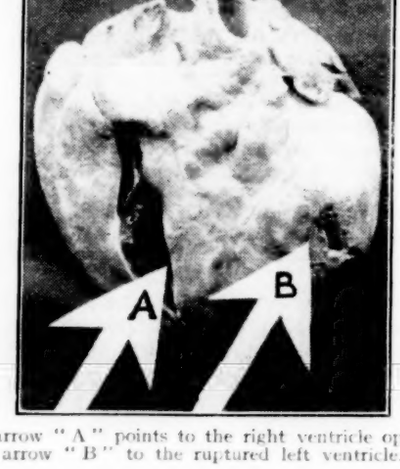
1. Whether increased well-being of the patient, combined with her freedom from pain, will allow her general condition to overcome what is probably a small focus in her only kidney remains to be seen.
2. The side-tracking of the bladder has been well worth the risk, whatever the final outcome may be.
3. In spite of being an only ureter transplanted through the sigmoid wall, no retained catheter was used or appeared necessary. This point might be worthy of note by those surgeons who feel diffident of transplanting both ureters at a time. In these cases I would suggest a retention of *one* catheter until the rectum discharges urine.
4. The possibility of a secondary tuberculous condition of the bowel must, of course, be borne in mind. She has no signs of it as yet.
5. The complete absence of any "abnormal" feeling in passing water, in women at least, should, I think, disabuse our minds of the present disposition to regard ureteric transplantation as an operation only to be undertaken as a last resource in certain conditions.

VERNON PENNELL, M.A., M.B., F.R.C.S.,
Honorary Surgeon, Addenbrooke's Hospital, Cambridge.

TRAUMATIC RUPTURE OF THE HEART WITHOUT EXTERNAL INJURIES

Rupture of the heart in the circumstances mentioned below is so rare that the case is worth recording.

The patient, a boy aged 9, had his chest pressed against a wall by the back of a double-bullock cart on April 21st, 1934. When examined soon after the accident, particularly for fracture of the ribs, he showed no external injuries, nor was there any evidence of internal ones. He felt quite well



The arrow "A" points to the right ventricle opened; arrow "B" to the ruptured left ventricle.

the following day, and was therefore allowed to go to school, where he took part in the usual games. On May 1st, while playing at school, he complained of precordial pain, and fell down dead.

The post-mortem examination revealed a haemopericardium. On removal of the clot the rupture on the anterior surface of the left ventricle was seen. The site was blackish grey, roughly circular, and about one inch by three-quarters of an inch in diameter. The rupture was probably due to contusion of the heart wall at the time of the accident and yielding of the muscle so damaged. An interesting feature would appear to be the absence of pain during the ten days preceding the rupture.

My thanks are due to Dr. J. M. Somasunderan, judicial medical officer, Colombo, who was kind enough to send the specimen to me.

H. O. GUNEWARDENE, M.B., B.S.Lond.,
Colombo. D.M.R. and E.Cantab.

Reviews

RATIONAL THERAPEUTICS

Hospital Practice for Interns is a pocket volume published by the American Medical Association[1] which provides a concise and carefully selected materia medica, and also contains a variety of useful data on such matters as the treatment of certain clinical emergencies and of poisoning, methods for the collection of specimens for biochemical analysis, etc. The authors explain the need for this volume as follows:

"Experience has shown that young physicians who fail to keep abreast of modern thought in medicine by the reading of new books and periodicals tend to deteriorate rapidly as far as concerns the standards inculcated in them in the medical college. They become a ready prey to the advertisements received directly from manufacturers of proprietary remedies, and they succumb easily to the facile flow of pseudoscience that emanates from the lips of the detail man. The lure of the fixed formula is also great, and tends to discourage thoughtful and scientific prescribing. The special mission of this book is to counteract some of the evils that have been mentioned, and to stimulate the young physician to continue the type of scientific medicine that is being taught in our medical schools."

In general it may be said that the material has been selected with great care and good judgement, and it certainly should do something to encourage young practitioners to regard drugs as chemical agents and not as charms whose potency depends on their proprietary name and style of packing. The evils which the authors of this volume seek to combat are prevalent in this country as well as in the United States. During the past year or two there has been an enormous output of literature on reform of the medical curriculum; yet scarcely anyone has emphasized the need for establishing habits of rational therapeutics during the student's course of training. The general idea among teachers appears to be that, provided the student is taught diagnosis, he will "pick up" therapeutics in his subsequent career. The trouble is that he picks the subject up from blotting-paper advertisements and commercial travellers, sources of information which are characterized by enthusiasm rather than by scientific accuracy. Too often the general result of this method of education is that the practitioner never uses an official preparation when a proprietary one is available, and often prescribes the same drug under half a dozen fancy names, being wholly ignorant of their identity. The American Medical Association has made great efforts in the past to combat this evil, and its latest venture seems to be a very useful one.

EXPERIMENTAL PHYSIOLOGY

Sir E. Sharpey-Schafer's *Experimental Physiology*[2] and Professor D. T. Harris's work on the same subject have recently appeared in new editions. Sir E. Sharpey-Schafer's book, an old favourite with students of physiology, is now in its fifth edition. Its revision has been undertaken by the author himself with the co-operation of Dr. W. A. Bain, and much new matter has been added, more especially of a kind that is likely to be of value later to the student—for whom the book is primarily intended—in his clinical work. There is considerable rearrangement of the subject-matter in some sections, and all parts of the book show evidences of thorough revision. Many of the directions have been rewritten or amplified, and among much new matter may be mentioned descriptions of the regulations of the circulation, of the tendon and skin reflexes, of heat production in muscle, of the carotid sinus reflex, and of new apparatus that has been introduced in recent years. An indispensable addition has been made in the shape of a good index.

In the second edition of *Harris's Experimental Physiology*[3] the author has adhered to his original intention of making the book of practical value to the student as a basis for his clinical work and at the same time a sufficient guide for those who propose to engage in the investigation of physiological problems in the laboratory. A new chapter has been added on body temperature, and one, contributed by Professor A. J. Clark, on the apparatus and methods used in practical pharmacy. The book has been further brought up to date by the addition or amplification of sections on, among other subjects, the capacity of the vascular system, group testing for blood transfusion, the chemical transmission of nerve impulses, the carotid reflex, the cardiac cycle in health and disease, the capillary circulation in man, the clinical estimation of the metabolic rate, water absorption and excretion, and the electrical analysis of the sensory discharge in nerves. These additions, with the descriptions of new apparatus, bring the work up to date as regards the requirements of the research worker.

MEAT INSPECTION

The practice of meat inspection owes much to pioneer effort in Germany, and Professor Ostertag's "Manual" on the subject has for long stood high in the esteem of those engaged in the work. After running into nine editions in German and four in English it has been replaced and superseded by an entirely rewritten "Textbook," this title being preferred by the author as permitting more condensation and more discussion of the general principles involved. The new book now appears in an English edition, edited by Mr. Dunlop Young and translated by Dr. C. F. Marshall.[4]

In an early section the importance is urged of the ante-mortem examination of animals intended for slaughter. Various ways of killing are noted, and weapons, pens, and traps are described. Instruments like pistols, if they destroy the medulla, are not conducive to effective bleeding. The method of electrical stunning does not labour under this disadvantage, nor does it lead to perforation of the brain membranes. This last feature allows of its being used, prior to the throat-cut, in the Jewish ritual slaughter. Operated in combination with the Weinberg casting pen, it serves to rebut the charge of cruelty which has been laid against the Jewish method of killing. The correct procedure in the examination of meat, the normal appearance and differentiation of the meat and organs of the various food animals, and departures from the normal which are within physiological limits are presented in order. Among the regional diseases tuberculosis of the udder is described and illustrated. In the chapter on animal parasites the German official instructions are quoted for rendering carcases mildly

[1] Chicago: 535, North Dearborn Street.

[2] *Experimental Physiology*. By Sir Edward Sharpey-Schafer, F.R.S. Fifth edition, revised by the author with the co-operation of W. A. Bain, Ph.D. London: Longmans, Green and Co. 1934. (Pp. 168; 94 figures. 6s. net.)

[3] *Experimental Physiology for Medical Students*. By D. T. Harris, M.D., D.Sc., F.Inst.P. Second edition (being the revised and enlarged edition of Anrep and Harris's *Practical Physiology*). London: J. and A. Churchill, Ltd. 1934. (Pp. 248; 230 figures, 1 plate. 12s. 6d.)

[4] *Text-Book of Meat Inspection (Ante-Mortem and Post-Mortem), including the Veterinary Control of Meat and Meat Products*. By Robert V. Ostertag. English edition, edited by T. Dunlop Young, O.B.E., M.R.C.V.S. Translation by C. F. Marshall, M.Sc., M.D., F.R.C.S. London: Baillière, Tindall and Cox. 1934. (Pp. xi + 743; 247 figures, 10 coloured plates. 45s.)

infested with *Cysticercus bovis* fit for human consumption by exposure to cold for twenty-one days. A figure is shown of the projection trichinoscope which has taken the place of the microscope for the detection of trichinella. In the important chapter on the infective diseases, which occupies a quarter of the text, the part played by bacteriology in scientific meat inspection is strongly in evidence.

The account of bacterial meat poisoning is distinguished alike by its range and completeness. It begins with a historical review of individual outbreaks, including the great, and still enigmatical, seizure at Überruhr in 1919. It deals with the *intra vitam* infection of the meat, and its infection during and after slaughter. It explores the somewhat complex history of the Salmonella group of bacteria, and explains their morphology, biochemistry, serology, and differentiation from one another. It discusses the question of latency in man and animals, and finally details the technique of the bacteriological examination of suspect meat, and the conclusions to be drawn from the results emerging. The fallacy of the mouse-feeding test is also pointed out.

Among other subjects dealt with is the putrefaction of meat, together with the effect of mincing in favouring its extension. Attention is devoted also to the boiling or steaming of infected meat with the object of rendering it fit for human consumption. The author, however, observes that such methods are not infallible, and states that mass infections have been known to occur. The diagrams and illustrations, in the text or in coloured plates, are of a high order. The translation has to some extent been adapted to the use of English readers by the omission of purely German references and by the addition in an appendix of a selection of Acts and Regulations which either apply to England or are in the English language. A work which originates from the hand of Professor Ostertag requires no commendation. The English translation, which is a credit to all concerned, is sure of a welcome in this country.

SPECIFICITY OF SEROLOGICAL REACTIONS

When Bordet discovered that specific immunization against microbes and toxins was only one manifestation of a universal mechanism which produced a reaction to any foreign substance injected into the body, a new era dawned in serological research. Workers quickly discovered various kinds of antibodies: an agglutinin which caused foreign cells to clump together, lysins which destroyed them, and precipitins which precipitated foreign protein bodies. All these substances were found to have a specific action—that is, one which was only evoked by the particular foreign bodies or by substances closely allied to them. Specificity is not confined to proteins but embraces simple chemical substances as well; it is at the same time the foundation of serology and one of its chief problems. Modern chemical knowledge does not extend to a complete understanding of the specific serum reactions, and it is not possible to investigate them by typical experiments with known substances.

Specificity is of course practically never absolute, but is a matter of a stronger reaction to certain antigens than to others. Even this concept does not take account of a number of phenomena which correspond in all their main particulars with serum reactions. Several vegetable toxins, such as abrin and ricin, will agglutinize blood corpuscles in much the same way as haemagglutinins. Some animal bloods are more sensitive to certain of these toxins than others. Some of the greatest differences are seen in the action of crotin, the toxin of croton seeds. Hitherto these vegetable agglutinins have been largely regarded as unspecific, but Dr. LANDSTEINER[5] has produced cogent experimental evidence for a considerable and regular variation in their action. This work is a summary of a succession of papers published by him on the phenomena of serological specificity, and points the way to a definition of this group of phenomena as the dissimilar effect of a series of similar agents on a series of allied substrates, and a quantitative differentiation of specificity into grades. It is not a book for the beginner, but contains a great deal that is valuable to the research pathologist and bacteriologist. Like most German works, it is very fully documented, and is an admirable guide to the literature of the subject.

MALL OF BALTIMORE

In *Franklin Paine Mall: The Study of a Mind*,[6] Dr. FLORENCE SABIN, who for twenty years worked in one capacity or another with the professor of anatomy at the Johns Hopkins University, has after five years of preparation brought out not only a most finished account of her former chief but also a sketch of the new birth of medicine in the United States, and in particular at the Johns Hopkins University, where this comparatively little-known pioneer unobtrusively played a most important part. He was described as the man in America who regarded "anatomy as a biological science, and rescued it from the position of the handmaid of surgery," whose name as an anatomist will be placed with those of Bichat, von Baer, and W. His, who founded an institute of embryology, and instigated the plan for full-time clinical teaching by which opportunities for research were made available in the clinics. Of German descent he was born in Iowa, and when 18 years of age entered the University of Michigan, where the medical course had just been raised to three years. It is rather surprising to learn that fifty years ago the proposal of President C. W. Eliot of Harvard, that American medical students should, for admission, be required to be able to read and write, was regarded as a radical and daring reform, likely to limit the number of medical students too greatly for the country's needs. Mall obtained the degree of M.D. in 1883, and then, as was often the procedure, went to Germany for clinical instruction. But the real work he undertook there was research, first in embryology under Wilhelm His on the thymus. A most interesting account is given of how he arrived at a conclusion different from that previously published by His, who, however, subsequently admitted it to be correct. Mall next went to Leipzig, where he became a favourite pupil of Carl Ludwig, who exerted a life-long influence on him; a series of charming letters from Ludwig is quoted, and Mall, when trying to express his gratitude, was told by Ludwig to "pass it on" to others, which became the leading motive of his life.

Returning to America, Mall was for three years pathological fellow at the Johns Hopkins University under Welch, and became associated with W. S. Halsted; then, somewhat changing his line of work, he was in 1889 appointed adjunct professor of anatomy at the new Clark University, Worcester, Massachusetts, where, however, the conditions were far from satisfactory; accordingly he accepted an invitation from the University of Chicago to organize an institute of biology, and in a year had one on new lines in working order. But after this short interlude there came the call to return to the Johns Hopkins University as the first professor of anatomy, which he accepted and held until his death in 1917.

[5] *Die Spezifizität der Serologischen Reaktionen.* Von Dr. K. Landsteiner. Berlin: J. Springer. 1933. (Pp. 123. RM. 8.80; geb., RM. 9.80.)

[6] *Franklin Paine Mall: The Story of a Mind.* By Florence Rena Sabin. Baltimore: The Johns Hopkins Press; London: H. Milford, Oxford University Press. (Pp. 342; 8 figures. 12s. 6d. net.)

These are the bare outlines of the intensely active life of one of the makers of the Great School where Osler, Welch, Halsted, and Howard Kelly were the four chiefs represented in the famous Sargent portraits. The story is told with sympathetic understanding, and in a fascinating manner reveals the personality of a great advocate of research and of the highest ideals for medical education.

Notes on Books

A second edition of *Massage and Remedial Exercises*,[7] by Miss Noël Tidy, has been called for within eighteen months of the appearance of the first, an indication of the welcome extended to this handbook of physical treatment. Advantage has been taken of this opportunity to improve and extend certain parts. Flat-foot is now discussed on more up-to-date lines, and some extra notes on light and electrical therapy have been added. The book is comprehensive and practical, and the lines of treatment are clearly shown in letterpress and figures. If the book still lies open to the criticism that here and there good judgement as regards the avoidance of risks by the lay physiotherapist seems to be taken for granted, it should be remembered that supervision by a medical practitioner is always presumed.

With a light and attractively whimsical touch which relieves the sordid details of crime, Dr. Harold Dearden, in *Death under the Microscope : Some Cases of Sir Bernard Spilsbury and Others*,[8] brings together twenty-one accounts of medico-legal interest. This collection of true medical detective stories, besides being eminently readable, is a useful guide in showing the logical and, when pointed out, obviously correct steps in establishing the guilt of the ingenious murderer or poisoner. The account of Dr. Pritchard of Glasgow, who in 1865 poisoned both his wife and his mother-in-law, is an example of the excellent way Dr. Dearden can marshal the facts of a case.

In the little work on *Medicine in Persia*,[9] which forms the latest addition to the Clio Medica Series, Dr. Cyril Elgood, late physician to the British Legation at Teheran, states that the medical history of Persia may be divided into two periods—namely, the pre-Moslem or Avestan period, in which the teachings of Zoroaster were the predominant source of theory and practice, and the Muslem or Arabian period, in which the source was pre-eminently Greek. The book consists of seven chapters devoted respectively to the mythological and Achaemenian Ages, the Seleucid and Sassanid Ages, the Caliphate and Baghdad School of Medicine, Avicenna, the decay of the Caliphate, the Mongol and Safavid Dynasties, and the Qajar and Pahlevi Dynasties. A table of political and medical dates of Persian history compared with current events in Europe is appended. Dr. Elgood maintains that though Persian medicine cannot claim equality with the primitive Greek or modern Western School, it reveals, if it does not surpass, the Roman, Byzantine, and Alexandrian Schools, owing to the introduction of numerous drugs still in use to-day, such as nux vomica, croton oil, rhubarb, senna, and sugar, the description of various diseases, especially small-pox, jaundice, and leishmaniasis, and the preservation of the great Hippocratic doctrines.

We think it safe to predict that the *Concise Oxford French Dictionary*,[10] compiled by the late Abel Chevalley, will soon find a place in many bookshelves beside the *Concise Oxford Dictionary* and Fowler's invaluable *Modern English Usage*. These three volumes are alike in price and binding, and their contents are informed by the same blend of accurate scholarship and ripe common sense. The latest member of the series is a "current use" French-English dictionary of nearly 40,000 judiciously chosen words, the general aim being not "to give information about the things represented by French words, but only about the nearest equivalence between French and English of the words and phrases which represent these things." It is based on a fresh survey of the field of modern French speech and literature, and of standard French literature. The commoner the word the more space and care are given to its uses and meanings and their nearest English equivalents. Printed indications and brief cautions are inserted wherever the student or translator needs to be warned against a pitfall: "beware of apparent analogy." Pronunciation is indicated by a simplified form of the Passy-Michaelis system of phonetic notation. Typographically this dictionary is in all respects worthy of the Clarendon Press ; it gives an immense amount of useful information in the least possible space without sacrificing legibility by the use of microscopical type, and its price is most reasonable.

[7] *Massage and Remedial Exercises in Medical and Surgical Conditions*. By Noël M. Tidy. Second edition. Bristol: J. Wright and Sons, Ltd. ; London: Simpkin Marshall, Ltd. 1934. (Pp. 430 ; 178 figures. 15s. net.)

[8] *Death under the Microscope : Some Cases of Sir Bernard Spilsbury and Others*. By Harold Dearden. London: Hutchinson and Co. 1934. (Pp. 288. 9s. 6d. net.)

[9] *Medicine in Persia*. By Cyril Elgood, M.D., M.R.C.P. New York: Paul B. Hoeber, Inc. 1934. (Pp. xiii + 105 ; 11 figures. 1.60 dollars.)

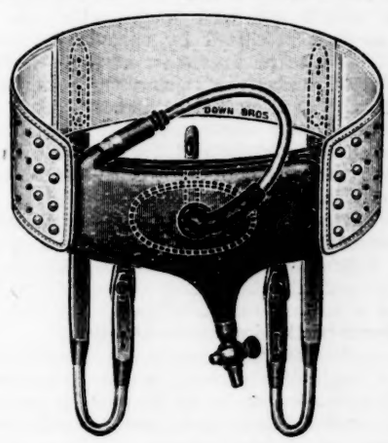
[10] *The Concise Oxford French Dictionary*. Compiled by Abel Chevalley and Marguerite Chevalley. London: H. Milford, Oxford University Press. 1934. (Pp. 928 ; illustrated. 7s. 6d. net.)

Preparations and Appliances

NEW DRAINAGE BAG FOR PERMANENT CYSTOSTOMY

Mr. Terence Millin, F.R.C.S. (London, W.1), writes:

The apparatus illustrated is an attempt to alleviate the lot of the patient condemned to a permanent cystostomy. It has been in use now for almost a year in the hospital and private practice of myself and a number of colleagues, and has given much satisfaction. The discomfort of a bag "flapping" against the leg while walking is avoided. The emptying of the bag can be carried out quite surreptitiously in a public



lavatory through the usual exitus from the trousers, saving the penny demanded for privacy when the older type of bag is being operated! The capacity of the bag is twenty ounces, but it is preferable to empty it when containing between eight to ten ounces. Its inlet is provided with a valve, preventing regurgitation from the container to the bladder. The theoretical objection of "uphill drainage" has not been substantiated in practice. It is, of course, all-important for the satisfactory functioning of any cystostomy that the fistula should be made sufficiently remote from the symphysis pubis.

The apparatus has been made for me by Messrs. Down Bros., St. Thomas's Street, London, S.E.1.

EUBION

"Eubion" tablets (Messrs. Evans Sons Lescher and Webb) contain vitamin A concentrate and vitamin D made up with a chocolate basis. The makers state that the vitamin A content of each tablet is equivalent to a tablespoonful of best quality cod-liver oil. It is generally recognized that administration of this vitamin may in many cases improve the condition of epithelial tissues, and thereby increase resistance to infection. Therefore its prophylactic and therapeutic uses are numerous. "Eubion" tablets have a pleasant taste, and constitute an acceptable substitute for cod-liver oil.

GEORGES DREYER'S SCIENTIFIC WORK AT OXFORD

REVIEW AND APPRECIATION BY A COLLEAGUE

A public lecture was given at Oxford on November 16th by Dr. E. W. Ainley Walker, University Reader in Pathology, on the scientific work of the late Georges Dreyer, Professor of Pathology at Oxford University from 1907 until his recent death. With much of the work he described Dr. Ainley Walker had himself been closely associated.

Dreyer's first important publication from Oxford was an account of his method, modified and elaborated from Madsen's, of measuring the agglutination titre of blood serum. This had already been published by Dreyer in his native Denmark, but on the whole had escaped attention in this country, and he proceeded accordingly to provide an easily accessible account of it in English literature. He had converted the rough qualitative test into a quantitative one, measuring the exact amount of agglutinative action present, so that all observations carried out by this technique are comparable irrespective of time, place, and individual observer.

The Source of Immune Products

The first new work to which Dreyer set himself was to throw further light on the source of agglutinins and similar immune products and the general mechanism of the protective reaction. In this work he was assisted by Dr. Ainley Walker, and together they showed by experiment that in animals specifically immunized by inoculation with the bacillus proper to the agglutinins under examination subsequent inoculation with a non-specific micro-organism caused a new rise in titre of the specific agglutinins which followed a "curve" of the same character as that produced by specific inoculation. One very important site of formation of these immune bodies was the blood-forming tissues and the reticulo-endothelial system. It appeared probable that the leucocytes of the blood, liberated into the circulation from these tissues, would themselves contain definite amounts of the agglutinins during the period of their active formation. Blood serum was accordingly compared with blood plasma for agglutinin content, and experiments established the fact that the leucocytes of the blood, as well as of the plasma, contained appreciable amounts of agglutinin, and that these cells, and the cells and tissues from which they arose, were a source—not necessarily the only source—of these products of the immunity reaction.

An attempt was next made to ascertain the total quantity of agglutinin present in the circulating blood of immunized animals instead of merely its percentage concentration, and Dreyer undertook a reinvestigation of blood volume in certain animals. This work established the view by a mass of experimental results that the volume of the circulating blood must itself be related numerically to the area of the body surface; also that the bore of the principal channels carrying the blood, as well as the lumen of the tube which admitted to the body the oxygen needed for combustion, would both be found proportional to the surface area in animals of different size and weight throughout any given species. Some controversy arose with workers who had used the carbon monoxide inhalation method for determining blood volume, and who accepted it as a fraction of the weight, but Dreyer and his collaborators convinced themselves that the inhalation method was unreliable, and the conception that within a given species of warm-blooded animal the blood volume of the individual was proportional to the surface area of the body had since been independently confirmed.

Effect of High Altitude upon Blood

The blood-volume formula was again confirmed by the fact that its application gave satisfactory solution to certain other problems, especially the effect of high altitude upon blood. When Dreyer began his experiments it was still uncertain how the rapid adaptation to diminished oxygen tension shown by successful climbers during an ascent was brought about. Dreyer and Ainley Walker formulated a working hypothesis that the immediate adjustment to gradual lowering of the oxygen tension took place by a concentration of the blood so that more haemoglobin was present per unit volume, and therefore more oxygen could be taken up in its passage through the lungs than when only the normal amount of haemoglobin was present. Experiments with rabbits showed that the constant of the blood-volume formula changed with change of altitude, so that the effect of increased altitude was to bring about a proportionate and marked concentration of the blood, thus increasing the amount of haemoglobin present per unit volume; but it was also proved that there was a further adaptation to altitude by the gradual production of fresh haemoglobin, additional to the animal's original supply.

In other directions it was possible, with this formula for blood volume, to open up useful lines of investigation. One of these concerned the relation of dosage to size. Hitherto the weight of the animal had been regarded as the governing factor, but certain incongruities made their appearance when that was taken, which disappeared when the doses were recalculated in relation to the body surface—that is to say, the blood volume—of the individual.

Dreyer's War Work and After

With the outbreak of war Dreyer turned his attention to the diagnosis and prophylaxis of the enteric fevers. In numerous communications he, with various co-workers, demonstrated the method of differential serum diagnosis in inoculated persons. He also took the opportunity to acquire new knowledge by working out in detail the form and the time relations of the immunity curves for agglutinins following doses of the vaccine. On becoming attached to the Royal Flying Corps, Dreyer took up the problem presented by flying at high altitudes, designing an apparatus for delivering an accurately controlled supply of oxygen into the breathing mask and devising a simple procedure for testing the effect of oxygen want. He also interested himself in certain problems connected with growth, recalculating the growth formula from new measurements on a more widely spread sample of the population and studying the development of physique, with special reference to the vital capacity of the lungs and the chest measurement.

The application of some of this work to tuberculous subjects at Brompton Hospital led Dreyer to consider the possibility of specific immunization against tuberculosis. With Vollum he prepared a defatted or washed-out vaccine, which gave satisfactory results in the treatment of tuberculous laboratory animals, and optimistic reports by certain workers of trials on man were forthcoming. Unfortunately, however, the promise failed to mature when the vaccine was released, under the control of the Medical Research Council, for extended clinical trial. Dreyer had been persuaded, against his better judgement, to a publication of his results, which thus proved to have been premature, and he was naturally chagrined, though he never complained of having been misled by the too hasty enthusiasm of others. But he continued with the subject, and only this year he had the satisfaction of publishing the results of a nine years' field experiment on a herd of Danish cows, which seemed to prove conclusively that his diaplyte vaccine possessed an indubitable protective value in cattle. Another direction in which his work in this field had been fruitful was in demonstrating that under certain conditions of culture in the laboratory the B.C.G. vaccine reacquired virulence for animals, so that it might be suspected of possessing a capacity to do so when placed in favourable surroundings within the human body.

The lecturer deplored the fact that Dreyer's untimely death had deprived so much useful inquiry of his stimulating direction and insight.

PUBLIC HEALTH PROBLEMS OF INDIA

Lieut.-Colonel A. J. H. Russell, I.M.S., the successor as Public Health Commissioner with the Government of India to Major-General Graham, calls attention in his first annual report, which covers the year 1932, to certain of the more important problems which have to be faced in modern India. Compiled on the eve of new constitutional reforms in that country, it is natural that the report should emphasize the point that the health and welfare of the peoples of India are the most weighty questions which the new Governments—Federal and Provincial—will have to face as soon as they come into being.

Economic Problems

The population of British India in 1931 was estimated by the census as being 271,526,933 ; that of India as a whole was 352,837,778. The rate of increase during the decennium 1921–31 was no less than 10.6 per cent., and various competent authorities have agreed that this will be about the normal for the future in the absence of any catastrophic occurrence like the influenza epidemic of 1918. Since the date of the census the usual epidemic diseases of cholera, plague, and small-pox have all shown large decreases in incidence, while famine in a death-dealing form has been unknown. The total population of India must now number, therefore, about 365 millions, and the next census will probably produce a total of nearly 50 millions more than that of 1931. Where is this large increase of population to find bread and employment? Can improved methods of agriculture, and the extension of cultivation to unused land provide the additional food supplies required? Even to-day the diet of many millions of the Indian people is not such as can maintain physical efficiency and health. There is, therefore, also another problem to be faced, the taking of energetic steps for the prevention of disease, and equally energetic measures for the education of the people in regard to mastery over environment. There will have to come a wide development of both central and provincial health departments, manned by experts capable of advising on the many difficult health problems which confront the leaders of India, for on the lines of action adopted for their solution will depend the prosperity, health, and welfare of many generations yet unborn.

In 1932 the birth rate for British India was 33.7 compared with 34.3 in the previous year ; the death rate was 21.6 compared with 24.8 ; and the infantile mortality rate fell from 178.8 to 168.7. The total area harvested was 9 per cent. below normal. The economic position of the agricultural population was depressed owing to the fall in prices, the resultant contraction in the credit of the cultivator, and the general depression in trade. Certain waterlogged areas were, however, greatly improved by drainage schemes.

Medical Problems

India is still the chief endemic focus of small-pox in the whole world. The proportion of vaccinated persons, although higher in urban than in rural areas, is still far below the figure necessary to prevent epidemic outbreaks. Again, though the total annual number of vaccinations approximates 15 millions, this is quite insufficient to ensure the immunity of the general population against infection. Colonel Russell remarks that every provincial health department has fought continually for many years against the general apathy which persists even in the face of virulent epidemics, but the percentage of the unvaccinated will remain high, and the incidence of this fell disease be maintained, until compulsory vaccination and revaccination are instituted generally. These will be the more effective in that the maintenance of potency in the seed lymph has already been placed on a satisfactory basis, and the problem of distributing lymph to the remotest villages has been successfully solved. During the past four or five years no single case of post-vaccinial encephalitis has been recorded. Help in the campaign against the disease has been afforded by the discovery of the facts that small-pox in India tends to become more prevalent and more virulent during the drier months of the year, when conditions of low relative humidity exist, and that, by noting changes in relative humidity, especially in dry areas, this indicator can be used to forecast epidemics of small-pox well in advance of their occurrence.

There was a decline in treated cases of malaria from 11¼ millions in 1931 to 11 millions in 1932. An official inquiry brought to light the fact that quinine is seldom used in therapeutically adequate amounts, and that the quantities consumed can have little or no effect on the malarial infections so widely prevalent in many parts of India. Mortality in connexion with childbirth is very high, and the problem of maternal deaths is even greater than was supposed. The main causes of this mortality lie in social customs which cannot be quickly influenced, but an extension of the training of midwives, both European and native, would be highly beneficial. The training of illiterate dais is a tedious business, yet the numbers of even partially educated women who are ready to become midwives is still very small, and the ancient prejudice against work which is regarded as " unclean " still lingers. One cheering aspect of the campaign is the increasing appreciation of the work of ante-natal clinics. The amount of child welfare work is pitifully small and is showing but little tendency to grow, rural areas being as yet almost untouched. Depression in trade is also preventing its spread in industrial areas. Colonel Russell points out that health work among women and children needs more and better forms of propaganda than are at present available. The material is poor, he states, and badly thought out ; many of the baby and health weeks are little more than " tamashas." He suggests that voluntary societies, which are responsible for much of this work, would do well to pay more attention to this aspect of their activities.

Future Possibilities

Concluding a report which is very clearly set out, although there is an immense amount of most interesting detail in its 400 pages, he pleads for lessening the restrictions on medical research in India, which is so vital for the prevention of diseases endemic in that country. He thinks that in rural areas it should be possible for a group of districts to keep a laboratory in full work, acting as the centre for all examinations and investigations required. Cerebro-spinal meningitis is increasing seriously, and great epidemics are threatened, particularly in the more congested centres of population. The Central Research Institute at Kasauli has recently had under preparation an anti-meningococcus vaccine manufactured from cultures originally taken from cases in Delhi, and this is now being tried in selected communities. Attempts are being made to obtain accurate records of all persons inoculated with the vaccine. It is hoped that sufficiently reliable data will become available in due course to permit of a reasonable evaluation of this new prophylactic.

Colonel Russell ends his survey on a gloomy note. Financial stringency has led to universal and often sweeping reductions in expenditure, even on such primary needs as protected water supplies and drainage schemes, medical research, anti-malarial works, medical inspection of school children, and maternity relief activities. Fresh developments have almost entirely disappeared. The public health problems confronting the new Governments in India are menacing, and it is hard to see how they can be faced at all hopefully by the present weakened central health organization. " One of the most immediate requirements," he writes, " is an All-India Public Health Act, which would lay down the broad principles on which all public health development should be based. Unfortunately the financial position has even forbidden the creation of the Central Board of Health which was suggested by the Simon Commission, and which had been planned by the present member in charge of public health as a first stage in effecting closer co-ordination between individual provinces in matters of public health. These and other developments must, it seems, await happier and more prosperous days."

FACTORS IN THE REDUCTION OF MATERNAL MORTALITY

A meeting of the National Baby Week Council, presided over by Dame Louise McIlroy, was held on November 14th, when the subject for discussion was stated as a problem for the propagandist: "Has Ante-natal Work Reduced Maternal Mortality?"

Dr. T. Watts Eden pointed out that not only was maternal mortality obstinately high, but neo-natal mortality—that is, the deaths of infants during the first four weeks of life—was high also. Ten years ago neo-natal mortality was about 40 per cent. of the total infant mortality; it was now 50 per cent. Yet during this period there had been a great extension of ante-natal work, and of expectant mothers 42 per cent. actually came to the clinics, while probably 80 per cent. had some form of ante-natal supervision. Superficially it would appear that ante-natal work had failed to reduce maternal mortality. During the period that ante-natal work had been developing great changes had come over obstetric practice, such as an increase in the number of beds devoted to maternity cases. In Manchester ten years ago only 11 per cent. of confinements took place in hospital; in 1933 the figure was over 40 per cent. Nevertheless, maternal mortality had slightly risen in Manchester during that period. Probably ante-natal work was unequal in quality. Year by year the concept of what it included was broadening. The clinics required directors of ability, experience, and training. A weak point in the system was the rule in teaching hospitals for the ante-natal clinic to be placed in charge of a junior member of the obstetric staff. More ante-natal beds were necessary—perhaps more necessary at the present juncture than beds for confinements. Public provision for the working mother during the last month of her pregnancy was also needed.

Dr. G. F. McCleary, late of the Ministry of Health, pointed out that the maternal mortality rate was based on a denominator which consisted of the number of live births registered and a numerator which consisted of the deaths classified by the Registrar-General as due to pregnancy and child-bearing. The denominator was plain sailing, but the numerator depended upon the system of classification obtaining, which had not remained constant. Further, the denominator included live births only, whereas the numerator took into account maternal deaths due to stillbirths and abortions, and for abortions no adjustment could be made. That would not signify if the proportion of abortions to live births remained constant, but there was reason to believe that abortion was becoming more prevalent, so that the numerator tended to increase without any corresponding increase in the denominator, with the result that the quotient went up. In recent years, again, medical certification had become more precise, and this tended to increase the apparent mortality. The decline in the birth rate also had increased the proportion of first pregnancies to the whole number, and first pregnancies were more dangerous than subsequent ones. With all these allowances, however, the figure for maternal mortality was intolerably high. Ante-natal clinics needed to be supported by the provision of pre-maternity beds and an adequate midwifery service.

Dr. Ethel Cassie, senior assistant medical officer of health for maternity and child welfare, Birmingham, said that experience had shown that at least 20 to 25 per cent. of women required institutional care and treatment at some time during pregnancy. Without the provision of ante-natal beds, ante-natal supervision was a cruel farce. Women's lives were not going to be saved by a few examinations at the clinics. Nutrition in pregnancy was a burning question. Milk sent into the home would be given to the other children, and not consumed by the mother, and badly nourished women would not go to dinners at the clinics and leave their families dinnerless. The only solution was a minimum family income sufficient to avoid malnutrition. The State provided old age and widows' pensions; why not pregnancy and nursing benefit? Finally, many women were physically unfit to be mothers; here it was not ante-natal care that was needed, but the prevention of pregnancy.

After some further discussion, in which the need for consultant services provided by local authorities, for adequate post-natal supervision, for pre-marital examinations and certificates of fitness for marriage, and for the provision of home helps before and after parturition were variously urged, Dame Louise McIlroy summed up by saying that it was out of the question to turn human beings into a stock farm, however much that might be wished; also that at the back of every scheme for the betterment of the poor mother was the jealous ratepayer. One thing which she thought it most necessary to overcome was the existing break in continuity of supervision. At present a woman might be under one medical man during the ante-natal period, under another during the confinement, and perhaps under a third for any subsequent complication. She thought too much attention was paid to pelvic and abdominal conditions, and too little to general nutrition. Post-natal supervision, with beds where the results of obstetric misadventures might be set right, was also a necessity.

BRITISH EMPIRE CANCER CAMPAIGN

In the absence of Lord Reading, Sir Holburt Waring (President of the Royal College of Surgeons) presided at the quarterly meeting of the Grand Council of the British Empire Cancer Campaign, held at 12, Grosvenor Crescent, on November 12th.

Grants totalling over £20,000 were allocated for the year 1935. These included: £8,000 to the Cancer Research Department of the Middlesex Hospital; £5,000 to the Cancer Hospital (Free); £2,500 to the Cancer Research Department of St. Bartholomew's Hospital; £2,000 to Mount Vernon Hospital; £650 to the Cancer Research Department of St. Mark's Hospital; £600 to the Marie Curie Hospital; £550 to Mr. I. Hieger, working at the Cancer Hospital; £500 to the Westminster Hospital; £350 for the Radon Centre at the Middlesex Hospital (through the Medical Research Council); £350 to the Strangeways Research Laboratory, Cambridge; £300 to Dr. P. R. Peacock, for the salary of an assistant, at the Glasgow Royal Cancer Hospital; £200 to Dr. Alexander Haddow, working at Edinburgh University; £200 to Mrs. Barbara Holmes, working at Cambridge; £100 to Mr. W. S. S. Ladell, working at King's College Hospital.

The Grand Council also granted a sum of £1,750 for 1935 for the salaries and expenses of two whole-time workers, who will investigate certain important schemes of research initiated by the Scientific Advisory Committee of the Campaign. Notification was received that an allocation of £5,000 had been made to the Campaign by the trustees of the late Mr. David Shields Crawford of Edinburgh.

The French National Council of Defence against Tuberculosis has published its statistical report for 1933, with special reference to the work of the dispensaries, which numbered 820 at the end of December, representing an increase of 43 in the year. The decline in the mortality from pulmonary tuberculosis continues at a greater rate than that from other causes. There have been increases in the number of patients' attendances and of radiological examinations and treatments. Oto-rhino-laryngological examinations were fewer, however. Pneumothorax is gaining in favour steadily. Sanatorium patients totalled 19,137, and another 13,510 were admitted to institutions of the hospital type. Preventoriums received 21,425, and the Grancher Foundation 4,203, of whom thirty-six were adults. Details are given in all these respects, and the activities in 1933 are compared with those of the seven previous years. A general survey is thus obtained of the progress made during recent years of the anti-tuberculosis campaign in France, with indications of changes in therapeutic outlook during the period under review.

British Medical Journal

SATURDAY, NOVEMBER 24th, 1934

THE PARLIAMENTARY SESSION, 1933-4

In the session of Parliament which began on November 21st, 1933, and ended on November 16th, 1934, legislation carried at the instance of the Ministry of Health was, with the exception of a minor Poor Law Bill, limited to emergency measures to facilitate the conservation and diversion of water during the drought and the provision of new rural supplies. Output of Statutes from the Ministry decreased pending consideration, in the session which began this week, of a further Housing Bill to prevent overcrowding and to promote the reconditioning of houses. This measure has already been in draft before the bodies which speak for local authorities. It is designed as a supplement to the national effort for slum clearance previously authorized by Parliament, and will be associated with the planning of town and country.

Public health has received little attention in either House during the past session ; anxieties were expressed and reassurances given about the nutrition and general condition of people in distressed areas. Parliament is conscious of, and perplexed with, the problem of excessive maternal mortality. The Commons has learnt that the Ministry of Health has promoted special local inquiries into this. The old controversy on vaccination was scarcely mentioned ; a private member's Bill for the registration of osteopaths was dropped on second reading, and the Board of Control did not come in for criticism. Generally speaking, the attitude of the House towards medicine and the medical profession varied between friendly interest and tolerant indifference. No comment was excited by an announcement made from the Treasury in July that the Medical Research Council now receives a State grant of £140,000 yearly. Behind the scenes the concurrence of a number of interested parties was gained for a draft of the Medicines and Surgical Appliances (Advertisement) Bill. A Government decision to take all the time of the House of Commons in the new session frustrates, however, the decision to introduce this as a private member's Bill. The Contraceptives Bill was carried through the House of Lords last year by Lord Dawson, but died in the Commons. A Domiciliary Nursing Services Bill also failed. Concern shown by back-bench M.P.s about the health and nutrition of school children induced a change of emphasis in Dr. Walter Elliot's Milk Act. In this was incorporated provision for more general supply of surplus milk to school children from the Milk Boards, whereas the original intention had been to dispose of such milk for industrial use. Dr. Elliot has in preparation a Bill for reorganizing the British cattle industry. He may be able to promote, under this and the Milk Act, the reduction of tuberculosis in cattle. Other medical M.P.s had little chance of prominence. Dr. Elliot's medical colleague in the Government, Dr. J. H. Morris-Jones, has been fully occupied with his duties as a Whip. On the other side of the House, the Opposition has welcomed Dr. Christopher Addison back to its Front Bench.

Back-bench opinion in the Lords, and to a lesser degree in the Commons, compelled the Ministry of Transport to insert in the Road Traffic Act provision for a payment, through the insurance companies, towards the expenses of doctors or hospitals who treat victims of road accidents. The Act was directed to securing more safety on roads, and has been followed by experiments for protection of pedestrians, about which the Commons has lately put many questions. The claim of medical men for compensation in respect of their services to road traffic victims was admitted in the House of Lords, where Lord Moynihan and Lord Danesfort both carried Bills on the subject. On this and other matters deliberation and private negotiation by the Parliamentary Medical Committee, under the chairmanship of Sir Francis Fremantle, has been helpful both to the profession and to the Government. Sir Francis has also shaped Parliamentary opinion as chairman of the Conservative M.P.s' Health and Housing Committee. The heaviest work done by the Commons during the session was upon the Betting and Lotteries Act and the Unemployment Act. In the former the Government and House recognized that the voluntary hospitals of the United Kingdom do not wish to be supported by lotteries. A proposal to give general authorization for hospitals to hold " Christmas draws " was defeated, and provision was made to check the appeals for British subscriptions to the Dublin Hospitals Sweepstakes.

The Unemployment Bill draws a clear line between unemployment insurance benefit and the relief of able-bodied destitute persons who are not entitled to this benefit. A National Assistance Board is to fix scales of relief applicable to the whole country. The hope of the Government is that these scales, together with the restoration of the " cut " in unemployment insurance benefit, and the lowering of the age of insurance, will provide safeguards against malnutrition among the unemployed. The whole Act is a decisive stage in the break-up of the old Poor Law, and will transfer to central administration what was till lately a pauper class under the Boards of Guardians. The medical side of Poor Law work, meanwhile, is being changed by administrative action under recent Statutes. Medical men in public service were included in the restoration of half the 1931 " cut " in salaries and in the capitation fee under national health insurance. This relief was made by the 1934 Budget, and there are hints that the 1935 Budget may restore the other half.

STAPHYLOCOCCAL INFECTIONS: SPECIFIC TREATMENT

The study of the toxins produced by *Staphylococcus aureus* is one of the latest advances of bacteriology. That the commonest of pathogenic bacteria should have been the subject of important discoveries at this period of medical history is a fact which should be well assimilated by those who regard the study of ordinary bacteria as having neared the limits of its usefulness to medicine. The data we now possess are that the staphylococcus forms a toxin or toxins the chief demonstrable effects of which are the lysis of red cells, the killing of leucocytes, and necrosis of the skin: all these actions are neutralized by the serum of an immunized horse, and recovery from an acute staphylococcal infection is accompanied by an increase in the blood at least of the antibody which is most readily demonstrated—the anti-haemolysin. The nature of the toxins produced in culture finds a clear parallel in the characters of the staphylococcal lesion itself, and there is no reason for doubting that these toxins are weapons by means of which the tissues are actually attacked. There is therefore a sound theoretical basis for the therapeutic use of antitoxin, and several reports on this method of treatment have appeared.

The latest and most comprehensive of these is by C. E. Dolman,[1] who has now treated 104 cases. His serum is obtained by the immunization of horses first with toxoid and afterwards with unaltered toxin, is concentrated, and is administered preferably by the intramuscular route, intravenous injection being followed by hyperpyrexia and often a dangerous degree of collapse. The former and safer route is said to require double the dose, and as much as 600 c.cm. in all may be needed in the average severe case: one of Dolman's patients received 1,700 c.cm. The cases are placed in twelve categories, ranging from carbuncle to septicaemia, and perhaps the most significant single feature of the results is that of sixty-four patients in whom positive blood cultures were obtained twenty-nine recovered. Many of the cases are described in detail, and it is for those to whom sufficient opportunities of applying this treatment are likely to occur to study them and form their own opinions. It is notoriously difficult to furnish unassailable evidence on a question of therapeutics, especially in conditions which are by no means of everyday occurrence and which may be of such gravity that to set aside untreated control cases is scarcely possible to anyone who has faith in the treatment he is studying. Nevertheless, the experience of Dolman and others has been such that staphylococcus antitoxin demands a universal trial until its uses and their limitations have been fully ascertained. It is to be hoped that improvements in the product will obviate the need for the enormous doses now being given, if indeed these have any advantage now over a more moderate policy of dosage. Apart from the effects produced by foreign protein, and the far from negligible question of cost, it may even be argued that the quantity of preservative (tricresol) administered cannot be without some adverse effect.

Dolman's papers refer also to the use of toxoid for active immunization, a proceeding which he recommends at an early stage in such conditions as carbuncle, when the patient is not severely ill. This is another subject, and one of which we may hear more in the near future, since the value of staphylococcus toxoid is at present under investigation in this country by the Therapeutic Trials Committee of the Medical Research Council. Of several reports already published the majority are favourable, but there is some conflict of opinion, and anomalous facts, especially in the relation between anti-haemolysin production and clinical progress, remain to be explained. Underlying this subject is an important question to which there is at present no certain answer: Is the state of resistance to staphylococcal infection dependent, either wholly or chiefly, on antitoxic immunity or on anti-bacterial? It is true that Parish, O'Meara, and Clark[2] have shown that immunization with toxoid confers a considerable degree of resistance to infection in rabbits, but parallel experiments with a bacterial vaccine were not carried out. Because the staphylococcus has been shown to produce exotoxin it is not therefore immediately to be classed with such an organism as the diphtheria bacillus, infection with which is almost purely a toxaemia and the issue similarly dependent on the development of antitoxic immunity. Bacteria, such as the pyogenic cocci, which besides producing toxin possess marked invasive powers, cannot be placed in the same category as this, nor can we rightly assume in the present state of knowledge that antitoxic immunity, such at least as present methods of immunization secure, is the whole of the necessary defence against their attack. It is also a noteworthy point of distinction that staphylococcus toxoid, unlike other toxoids, is being used not for prophylaxis but for the treatment of existing infections. Some of these, such as sycosis, are of a most obstinate type, and in the course of these efforts we may perhaps gain some insight into the mechanism by which chronic infections, particularly of the skin and of the mucosa of the upper respiratory tract, often resist every attempt at an active immunization which in theory should suffice to dispel them completely.

[1] *Canadian Med. Assoc. Journ.*, 1934, June, p. 601; July, p. 1; August, p. 130.

[2] *Lancet*, 1934, i, 1054.

AURICULAR FIBRILLATION AND FLUTTER OF UNKNOWN AETIOLOGY

To say that a patient has auricular fibrillation is not to make a diagnosis, but merely describes the symptom—an arrhythmia resulting from some form of damage to the heart muscle. Most often this injury is rheumatic in origin; not uncommonly it results from toxic goitre; sometimes it is associated with high blood pressure; and sometimes the only obvious associated lesions are the degenerations in the cardiovascular system which occur with advancing years. Rarely it appears to be connected with local infection—for example, a cholecystitis.

It sometimes happens, however, that the cardiac irregularity appears as an isolated symptom, and no other abnormality is to be made out, either in the cardiovascular system or elsewhere. R. D. Friedlander and S. A. Levine[1] describe a series of twenty-five patients presenting such idiopathic fibrillation, thirteen having the paroxysmal and twenty-two the permanent form. In the former the age at onset was about equally divided in the various decades from the third to the sixth. A precipitating factor was stated to be present in some, the most frequent being exertion. Digitalis and quinidine, both alone and together, were given to five patients during attacks, and the results suggested that the treatment might have shortened the duration of the attacks. The group with permanent fibrillation comprised twenty-two patients, with one exception all males, and the average age at the onset of the attacks was 43. *X*-ray examination was carried out in only nine patients; in these the heart was normal in size in all except one, and this in spite of persistence of the irregularity for an average period of several years. Treatment with quinidine restored normal rhythm in ten patients; but in none of these had the onset occurred more than three years previously. One patient, for whom no attempt was made to restore normal rhythm, was stated to have had fibrillation for thirty-one years; and, although he had no treatment, he remained free from symptoms till five years before his death, when he developed a cerebral embolus. It is not stated on what grounds the original diagnosis of auricular fibrillation was made in this case, and some form of tracing is obviously desirable to substantiate such an unusual claim. Four cases of auricular flutter are also reported in men over 60 and unassociated with any demonstrable cardiovascular disease. In three it was paroxysmal, and here the exciting factor was exertion in two and an attack of lobar pneumonia in one. In one patient flutter had persisted for four years; no attempt was made to restore normal rhythm. Of the paroxysmal cases the arrhythmia was terminated with digitalis in two and quinidine in one. Auricular fibrillation is an arrhythmia which usually connotes a high degree of disturbance of the functions of the myocardium. In the solitary extrasystole or premature beat there is a harmless disturbance of cardiac rhythm which almost every individual experiences at some time or another. A more severe disturbance is paroxysmal tachycardia, but even here there is frequently no evidence of gross cardiac damage. There is reason to believe that these arrhythmias are often of neurogenic origin, and extrasystoles have been produced in animals by stimulating the hypothalamic region of the brain. Similarly, auricular fibrillation has been experimentally produced by stimulating the cardiac nerves, and it is plausible that in cases such as those described by Friedlander and Levine the alterations in auricular conductivity and refractoriness on which fibrillation directly depends are the result of abnormal nervous impulses. The role of exertion and emotion in precipitating attacks is consistent with this. Though the abnormal rhythm may be well tolerated, especially under adequate digitalization, these patients are unquestionably better off when normal rhythm is restored, and quinidine usually accomplishes this with ease, except in cases of long duration. The grave risk of embolism resulting in the old-standing case, whether the arrhythmia persists or is terminated, is another reason for early treatment.

[1] *New Eng. Journ. Med.*, October 4th, 1934, p. 624.

INFLUENCE OF HEAT AND LIGHT ON NASAL MUCOSA

It is common knowledge that in certain individuals changes in surrounding temperature produce greater or lesser changes in the freedom of the nasal air passages. A scientific study of this phenomenon by Sir Leonard Hill and his co-workers led to certain interesting results. Hill found that when rays from a dull red or dark source of heat fell on the skin of the face or body a reflex was set up which resulted in a congestion of the nasal mucous membrane and a consequent narrowing of the nasal airway. The reflex could be prevented by cooling the irradiated surface by means of a fan or by approximation of a cold surface. The rays used in the demonstration of this effect were long infra-red rays. Further investigation showed that, if shorter rays were added in sufficient proportion to those coming from the dull source of heat, then the phenomenon was inhibited or at any rate antagonized. It was later stated that the effect is marked only in people with deflected nasal septa or with chronic catarrhal conditions, but that it becomes manifest in normal subjects if a slight degree of nasal obstruction is produced by a nose-clip. The antagonism of short and long waves was later extended by the demonstration that if during exposure to a heat source an electric lamp be brought near the face there is a subjective feeling of relief from heat and a sensation of relative coolness. These experiments have been examined in some detail by Winslow, Greenburg, and Herrington,[1] particularly those relating to the "nose-opening" effects of short waves as opposed to the "nose-closing" effects of long waves. These authors used two procedures designed to obtain quantitative data on these matters. In the first method the subject lay on his or her back in a darkened room. In one nostril a glass tip encased in plasticine was inserted so as to fit the nostril closely. This glass tip was connected to a rubber membrane tambour writing on a smoked surface on a kymograph. In this way records could be obtained of changes in pressure in the closed nostril during expiration, and hence gave a measure of any change in the degree of approximation of the mucous surfaces of the nasal airway. More accurate observation of the patency of the nasal airway was obtained by determining the time of passage of a fixed volume of air, delivered at low pressure from a spirometer, through one nostril and out at the other whilst the subject holds his breath. The inlet nostril is rendered airtight so that the circuit of the nasal airway must be made by the emerging air. This method is uncomplicated by varying respiratory activity and, according to the authors, gives reliable and consistent results. Using these methods, carefully controlled observations were carried out to test the validity of the claims made by Hill and his co-workers. It was found that constriction of the nasal airway (nose-closing) can be produced with reasonable certainty and constancy by exposure of the skin to the rays of a dark-glow

[1] *Amer. Journ. Hyg.*, July, 1934.

radiant source of heat, by immersion of the arm in hot water, and by exposure to a high atmospheric temperature. Contrary to the views of Hill, these workers interpret their findings as due to a direct response to the warming of the skin, with no relation to any specific wave-lengths. Although these reactions are more readily demonstrated in subjects with deviation of the nasal septa or other nasal abnormality, Winslow and his co-workers, with their delicate spirometer method, have shown their occurrence in normal subjects. As regards the "nose-opening" effects of shorter wave rays described by Hill, these authors found the exact reverse—namely, an increase in nasal congestion was observed when electric light was directed on to the face of a subject already exposed to the dark-glow heater. These results appear to be supported by carefully conducted experiments, and it seems that the original observations of Hill will require re-examination before the extraordinary effects of the so-called "nose-opening" rays can be generally acceptable.

PROTECTION OF RADIUM WORKERS

The increasing use of large quantities of radium in medical practice, particularly in beam therapy, has emphasized the need for further information on the protection of radium workers from gamma rays. In a paper read before the British Institute of Radiology on November 15th Dr. G. W. C. Kaye, director of the physics department of the National Physical Laboratory (with whom were associated Mr. G. E. Bell and Mr. W. Binks) brought forward a number of observations on gamma-ray doses which have been made at the laboratory, thanks to a working association with the National Radium Trust. For *x* rays a system of protective recommendations has been built up on the basis of a tolerance dose, but in the case of gamma rays from radium, as Dr. Kaye explained, the position is less satisfactory, and it does not appear that enough data are available to evaluate such tolerance dose. The two main factors of gamma-ray protection are to place the radium source in as remote a position as may be convenient, and to enclose it in protective material to the greatest practicable extent. To double the distance from the source is roughly equivalent to increasing the lead protection by nearly 3 cm. But in many cases there is no alternative to lead protection, and accordingly Dr. Kaye and his colleagues have worked out the transmission curve of gamma rays in lead under conditions simulating as closely as possible those that obtain in practice. Here we must omit the elaborate tables and computations which these workers adduced, and give a brief summary of their practical conclusions. The tolerance distance for unprotected quantities of radium of 0.2 gram and upwards is greater than the distance between adjacent beds in the average hospital ward, so that discretion should be exercised if patients undergoing irradiation are placed in the same ward as other patients. As far as nurses and attendants are concerned, the tolerance distance for 0.2 gram of the unprotected element is about 2 metres, so that they should only approach within that distance when it is essential. For quantities of 0.5 gram the tolerance distance for nurses and attendants is about 3½ metres. Therefore it is undesirable for staff to remain in the immediate vicinity of patients undergoing treatment with such quantities. The carrying boxes used for the transport by hand of reasonable amounts of radium within the confines of hospital or laboratory are usually small and constructed of wood, both box and lid being lined with lead of about 1 cm. thickness. Such boxes are regarded by the National Physical Laboratory investigators as suitable for occasional transport of small quantities of radium, but where substantial quantities are frequently transported larger boxes with centrally situated small containers and more adequately protected should be provided, and should be conveyed by trolley rather than by hand. As for transmission by post, these investigators explored the relative merits of size and lead protection in the case of various packages containing radium which are subject to the limitations of the British parcel post (namely, maximum weight, 11 lb.; length plus girth, 6 feet), and their results showed the superiority of distance over lead protection, and that a bulky package employing no lead may have only half the weight and yet be thrice as effective as the smallest package with the maximum lead protection. The use of bulky packages in the post, moreover, is likely to result in their being transported by vehicle rather than by hand, which is an advantage. The increasing use of radium beam therapy has suggested some experiments, leading to the conclusion that nurses and attendants should not remain for any appreciable time at distances within, say, 1½ metres behind the bomb, 2½ metres from the side of it, or 4½ metres in front of the bomb in the direct beam. In general, the results obtained at Teddington lend support to the recommendations of the international and British committees for *x*-ray and radium protection, and afford evidence that these recommendations provide a sound basis for radium protection, particularly in such matters as storage, the employment of temporary workers, and the importance of expeditious manipulation in busy radium centres.

A MENTAL HOSPITAL CLINIC

The Herts County Mental Hospital at Hill End, St. Albans, is fortunate in having a progressive and broad-minded committee which does not quibble about the introduction of the latest ideas in mental hospital work. One of the outstanding features there is the out-patient clinic, which is conducted, not by the medical superintendent, but by a visiting psychiatrist. The authorities at Hill End feel, with reason, that the position of a medical superintendent is bound up with an atmosphere of authority and discipline which makes the psychotherapeutic approach singularly difficult. To this objection is of course to be added the fact that the administrative duties he is compelled to carry out make it hard for him to find time for prolonged and patient investigation. He has an out-patient clinic at the general hospital, where he sifts out patients suitable for intensive psychotherapy, and refers them to the Hill End clinic. At the same time in-patients at Hill End attend this clinic when suited for it, and can continue their treatment there when they are discharged from certificate. The clinic is run on the team principle, and a skilled social worker from one of the London hospitals visits the patient's home and school and

acquires as much knowledge of the environmental background as possible, in order to help the psychiatrist. She is also a great help to the relatives, and is responsible for continuing this service after patients have been discharged. A psychologist makes investigations of a non-medical nature, and provides vocational guidance and educational training. Child guidance is also undertaken, and there is a playroom for observation of children. Patients are sent by magistrates, probation officers, private doctors, teachers, and social workers throughout the county. The clinic is designed to be a training centre for doctors and lay workers alike. The committee has authorized the provision of bursaries for social workers and also the appointment of two house-physicians. This provision offers a unique opportunity to the young medical man or woman who wishes to learn something about psychiatry as a preparation for general practice, but who is not willing to join a special service, with its administrative obligations and other restrictions. The house-physicians will be relieved as far as possible of administrative duties, and they will be taught how to treat the physical ailments of mental patients, and how to deal with the manifestations of mental illness which can be treated outside an institution. Their appointment will be for six to twelve months, and during that period they will also be able to attend the bi-weekly conferences of the out-patient clinic, where patients and methods are discussed.

TONSILS AND THE RHEUMATIC CHILD

The exact part played by tonsillar infection in the rheumatic group of disorders in childhood is not yet altogether clear. Dr. A. D. Kaiser, whose book, *Children's Tonsils In or Out*, attracted a great deal of notice some two years ago, has now repeated his statistical method,[1] this time dealing with a group of 1,200 rheumatic children in an endeavour to analyse the factors associated with the primary and recurrent manifestations of this disease. Because of his previous interest in the tonsil problem Dr. Kaiser's conclusions as regards juvenile rheumatism and the tonsils are of particular value, although his detailed analysis of other factors may also be profitably studied by those especially interested. It is quite generally accepted that there is a relation between an initial infection in the tonsils and a subsequent rheumatic manifestation. If this is true there should be a lessened incidence of rheumatic disease in children whose tonsils have been removed. A broad analysis in a previous study had shown that about one-third more children had their first attack of rheumatism when their tonsils were "in" than in those where the tonsils were "out." But Dr. Kaiser is not satisfied with this broad view: he is able to compute the expected incidence of rheumatic disease among the "tonsillectomized" (vile word) children of Rochester because of his previous knowledge of the distribution of tonsillectomized children at different age levels, and thus he shows that for the entire group of children the presence or absence of tonsils made only a slight difference on the frequency of an attack of rheumatism. Chorea was slightly more prevalent among the tonsillectomized children than was expected, and the same was true for muscular rheumatism or "growing pains." On the other hand, rheumatic carditis was less frequent among the tonsillectomized children than the expected rate, and this is reflected in a still more important difference in the mortality rates. In almost comparable groups the mortality rates were 13 per cent. among the children whose tonsils were in and 7 per cent. among those whose tonsils were out at the time of the initial attack. As to recurrences, the presence or absence of tonsils appears to make no difference. It would seem possible from these results to deduce what course should be taken in the treatment of diseased tonsils in a rheumatic child. Removal will not prevent recurrences, and, in fact, it will slightly add to the risk of the child's having chorea or growing pains. On the other hand, if the tonsils are removed early in the course of the rheumatic infection there is slightly less chance of heart disease developing and considerably less risk of severe disease of a fatal type. As to age, Dr. Kaiser's present analysis makes the following point—that the advantages of removal of the tonsils to the rheumatic child are almost confined to the younger age groups, and after the tenth year the presence or absence of tonsils makes no appreciable difference.

[1] *Journ. Amer. Med. Assoc.*, September 22nd, 1934, p. 886.

SYPHILIS TESTS WITH SCANT SUPPLY OF SERUM

A report[1] by Dr. E. J. Wyler, which has recently been issued by the Ministry of Health, should help to solve the problem of what is to be done when it is impossible to obtain blood from a vein for the Wassermann or for a flocculation test. This difficulty is commonly met with in young children, not rarely in women, and occasionally even in men. Where a suitable vein cannot be found blood in small quantities may be obtained from various sources such as the lobe of the ear, the finger, or the heel. The author shows how with 0.15 c.cm. of serum, which is obtainable from as little as 0.5 c.cm. of blood, a Wassermann reaction and three flocculation tests for syphilis can be carried out. The tests which he has chosen are modifications of those associated with the names of Wassermann, Kahn, Meinicke, and Rosenthal: positive reactions with the Wassermann and any one of the three flocculation tests are quite sufficient to establish a diagnosis of syphilis (with the usual provisos), so that the author has made a most useful contribution to the subject. All four methods are described in detail, and their relative advantages and disadvantages are compared and discussed. With the report beside him any competent serologist could carry them out in a normally equipped laboratory.

The next session of the General Medical Council will open on Tuesday, November 27th, at 2 o'clock, when the President, Sir Norman Walker, M.D., will take the chair and deliver an address. The Council will sit thereafter from day to day until its business is concluded.

A special meeting of the Royal Society of Medicine (for Fellows only) will be held at 1, Wimpole Street, on Thursday next, November 29th, at 9 p.m., when Professor R. G. Minot of Harvard will lecture on "Some Aspects of Anaemia."

[1] On Serological Tests for Syphilis with Very Small Amounts of Patients' Serum. By E. J. Wyler, M.D. Ministry of Health, Reports on Public Health and Medical Subjects, No. 74. H.M. Stationery Office. (6d.)

Scotland

Mental Disorder in Scotland

The twentieth annual report by the General Board of Control for Scotland[1] shows that on January 1st of the present year there were 19,538 insane persons in Scotland, exclusive of those who were maintained at home by their natural guardians. This number included 9,983 males and 9,555 females, while of the total number 2,823 were maintained from private sources, 16,638 from the rates, and seventy-seven at the expense of the State in Perth Criminal Lunatic Department. At January 1st, 1933, the total number had been 19,411, which showed an increase of 127 during the past year. Certified mental defectives on the register of the Board at January 1st, 1934, numbered 4,012, including 2,042 males and 1,970 females. Of these 1,137 were maintained in institutions for adults; 1,520 in institutions for juveniles; 1,341 in private dwellings; and 14 in the State institution. The total number of admissions of insane persons (including transfers) during 1933 was 2,862, which was eighty-one more than in the previous year, but 310 fewer than the average for the quinquennium 1925–9. Private patients admitted numbered 431, which was thirty-five more than in the preceding year, but thirty-nine fewer than the average for the quinquennium 1925–9. The number of pauper patients admitted was 2,431, which was forty-six more than in the previous year, but 271 fewer than the average for the quinquennium 1925–9. There were 359 private patients and 1,851 pauper patients admitted for the first time to establishments during 1933. Voluntary admissions are not registered, but a record is made of the names and particulars of patients so admitted, the total number in 1933 being 801, while the total number resident on January 1st, 1934, was 1,088. During 1933, 140 private patients and 923 pauper patients were discharged recovered. With regard to deaths, 200 private patients died in establishments during 1933, and 1,148 pauper patients. These figures were respectively eighteen and twenty-one fewer than in the previous year, with a death rate of 7.5 per cent. of the average number resident for the year. In the course of the year 146 patients were discharged on probation, of whom eleven were finally discharged recovered, thirty-seven returned to asylums, and three died. The number of escapes from establishments was 104; forty-eight of these patients were brought back within twenty-four hours, twenty-six within a week, and thirteen after a week, leaving twelve still absent at the expiry of the period of twenty-eight days. Accidents reported as having taken place numbered 186, of which twelve ended fatally, being due to suicide in seven cases. With regard to the boarding out of mental cases, the number of patients who were not paupers in private dwellings at January 1st, 1934, was sixty-three, while the number of pauper patients was 1,290, a decrease of twenty-eight as compared with the figure for the preceding year. Favourable comments are made upon the high standard of care bestowed upon rate-aided mentally defective patients by their guardians in private dwellings. Very few of the latter consider their duty accomplished when they have complied with the regulations by providing suitable accommodation, occupation, food, and supervision, but go much further and arouse the interest of the patients, arrange occupation for leisure time, and give them a real home. The success of the boarding-out system is attributed to the careful selection of patients and guardians, the supervision exercised by local authorities, and the interest of medical officers, although the real success is due to the guardians themselves. It is urged also that a benefit is conferred upon the community by the presence of such patients in their midst, in so far as it produces greater sympathy and understanding among the general public and helps to develop a new and enlightened attitude towards mental illness and defect. A table shows that the proportion of recoveries in royal and district asylums averages over 30 per cent. of the number of admissions, and the significance of this relatively high proportion in recent years is connected with the fact that an increasing number of the patients from whom recoveries are to be expected now enter asylums as voluntary patients. Another factor of importance is that a number of patients suffering from early forms of mental disorder are now treated in observation wards of general hospitals, so that only the less hopeful cases are passed on to the asylums. Attention is drawn to the difficulty experienced by many patients, after discharge as recovered, and by mental defectives who have undergone a period of specialized training, in becoming reabsorbed into industry. It is pointed out that local authorities have no official duty in this matter, and that most of the after-care falls upon voluntary agencies. It is suggested it would be desirable that local authorities in urban areas should have powers to provide for the education and training of children reported as unsuitable for education in special schools or classes, and for whom, accordingly, the education authority has no duty to make provision. As an example of what might be done for such cases, there is cited a training centre established in 1930 by the local Care Committee in Edinburgh, under the charge of three teachers, which has a daily average attendance of seventy-nine. Attention is also drawn to the important work, during the past eleven years, of the Scottish Association for Mental Welfare. With regard to the financial burden of mental disease, it is stated that during the year the cost of maintenance of pauper lunatics was £932,947. The average weekly charge varied from 13s. 5d. in private dwellings to 21s. 9d. in royal asylums. The expenditure by local authorities on mental defectives for the year involved a total sum of £205,743.

[1] H.M. Stationery Office, 120, George Street, Edinburgh. (1s. 3d. net.)

Ireland

Ulster Medical Society

At the opening meeting of the Ulster Medical Society, which was held in the Whitla Medical Institute, the outgoing president, Professor W. J. Wilson, M.D., D.Sc., introduced his successor, Dr. S. R. Hunter, to the presidential chair in a happy speech, after having thanked the fellows and members of the society for their support during his year of office. Dr. Hunter acknowledged the very high honour the society had conferred on him by electing him as its president for the year 1934–5, and appealed for encouragement in his term of office. He referred to the loss the society had sustained in the past year by the deaths of Sir William Whitla, Professor Andrew Fullerton, and Professor John A. Milroy, as well as a young member, Dr. John H. Gillespie, as the result of a motor accident in London. Dr. Hunter then gave his address on his experiences during the war with the medical unit in Janesh, on the Balkan front. He handled his subject in a most interesting manner, and kept the attention of his audience throughout with a record of his impressions and experiences, dealing with illnesses rare in this country and the manner of treating them. There were interludes of exciting experiences, as well as pleasant surprises of acquaintances of more peaceful days arriving

for duty. The thanks of the meeting were conveyed to Dr. Hunter, as well as wishes for a most successful year of office.

Action Against a Public Hospital

Mr. Justice O'Byrne, in the High Court, Dublin, granted an application for further particulars in two cases in which Mr. Owen Denenny, Clane, County Kildare, was the plaintiff, and the Kildare Board of Health and Public Assistance were the defendants. In one case plaintiff sued on behalf of his daughter, aged 6½, for £3,000 damages, and in the other for £1,000 on his own behalf. Plaintiff alleged that about November 10th, 1933, his daughter was suffering from scarlet fever, and when this had been notified to the medical officer of health she was removed to the Fever Hospital at Naas, in which it was the duty of defendants to provide reasonably skilled medical and nursing treatment and attendance. He alleged that the Board failed in this duty; that they retained at the hospital a doctor and nurses whom they knew to be careless; and that they had failed to relieve the doctor and nurses of their duties in the hospital as required by an order of the Department of Local Government and Public Health. By reason of this negligence so alleged, plaintiff claimed that his daughter did not receive sufficient medical and nursing treatment and attendance, that she was discharged from the hospital and permitted to return to his house while in an infectious condition, and that she was verminous. He also claimed that his daughter infected another child, who died. Defendants denied all the allegations of plaintiff, and now asked for further particulars.

England and Wales

Ambulances for Maternity Cases

Arrangements for the free conveyance of maternity patients to hospital by the London Ambulance Service, provided to deal with street accidents, were first made in 1920, but at first such conveyance was available only during the night, except on sudden emergency and on the application of a doctor or midwife, who must accompany the case. It is now considered by the Hospitals and Medical Services Committee of the London County Council that the absence of free facilities for the conveyance of non-urgent maternity cases in the daytime is not justified, and that the ambulance service should be available without charge for such cases at all times. The conditions are that the patient shall have made arrangements for her admission to a hospital or municipal institution, that she shall be accompanied by a doctor, nurse, or female friend, and that she shall be wrapped in blankets ready for removal.

Approximately 10,000 maternity cases are admitted every year to the L.C.C. hospitals, 10,900 to the voluntary maternity hospitals, and 2,550 to the municipal maternity homes, while in the voluntary general hospitals 681 maternity and gynaecological beds are provided, giving accommodation to possibly some 10,000 patients a year. The number of cases conveyed by the Council's ambulances under the existing arrangement for night cases and urgent day cases was 4,416 in 1933. It is believed that, with the extension of service to non-urgent cases in the daytime, the probable number of cases so conveyed will be from 50 to 75 per cent. of all maternity patients, who number, as shown above, more than 30,000 a year. It is considered that at a time when every co-ordinated effort is needed to reduce the risks incidental to childbirth, and greater use is being made of municipal and other hospitals for confinement, it is essential that no unnecessary limitations or conditions should be placed on the use of the ambulances for the conveyance of such cases to hospital. In most cases the patient does not go into hospital until labour is imminent or has commenced, and maternity patients in this condition should not be compelled to rely upon the ordinary public conveyances. Further, patients who have booked a bed in a maternity hospital have not engaged a private doctor or nurse (who, under the present regulations, must accompany them), and in many cases could not afford to do so. Possible difficulty, owing to the fear of confinement taking place in a public vehicle, must also be considered. The proposal involves an increase in the number of ambulances in commission from 147 to 153, and twenty-four additional attendants. A suggestion that daytime maternity cases might be conveyed more cheaply by taxicab at the Council's charge was ruled out, chiefly owing to the difficulty of obtaining taxicabs at certain times and in poor districts.

The Bed-bug as a Housing Problem

Dozens of live bugs were exhibited at a meeting, held to discuss the bed-bug as a housing problem, at the Royal Sanitary Institute on November 13th. They had been collected by officers of the Woolwich Borough Council, and were part of an exhibit demonstrating the life-history of the bed-bug, its place of lodgement, and methods of disinfestation. There was also a film, prepared by the lecturer, Mr. McKenny Hughes, with the aid of Mr. Leonard Day, which showed the bed-bug in its accustomed habitat, the insect feeding on the lecturer's arm, the effect of the bites, and the various steps necessary to eradicate the insect from furniture and houses. Lord Balfour of Burleigh presided at the meeting, and an appeal for a by-law controlling the sale of secondhand furniture was put forward by Mr. McKenny Hughes, who is an entomologist at the British Museum (Natural History). Prevention of infestation of new houses, he said, was not difficult. Tenants' furniture could be fumigated in transit to the new house with hydrocyanic-acid gas in one of its forms, or, alternatively, all furniture should be fumigated in the new house within one week of its arrival. The latter method necessitated a clearing place where people whose houses were being fumigated could spend the night. The disposal of material from bug-infested houses demolished under clearance orders was another difficult problem to be faced. Woodwork, as firewood and in other ways, was liable to be an important factor in the dissemination of the bed-bug. The presence of this insect should not be considered as a social stigma and something to be hidden, but as a misfortune from which any of us might suffer.

Central Midwives Board

At its November meeting the Central Midwives Board for England and Wales considered a letter from the medical officer of health for Willesden, stating that on January 1st next the Willesden Maternity Hospital would be greatly enlarged and asking that permission should be granted for eight pupils to be trained instead of five. It was agreed to reply that in accordance with the Board's practice in these matters the question of an increase in the number of pupils to be trained could not be considered until it was seen from the number of cases actually taken in the new beds that such an increase was justified. The medical officer will be asked to submit a later application when the new beds have been in use for a time. The Board stated, in reply to a letter from the county medical officer of health for Flintshire, that it saw no necessity for a local supervising authority to supply practising midwives with books of detachable pulse and

temperature charts, in addition to the ante-natal record book, approved by the Board, which contains pulse and temperature charts. The terms of the following resolution, which was passed at the annual conference of the National Council of Women of Great Britain at a meeting in Edinburgh last month, were noted by the Board:

"That, in view of the serious rate of maternal mortality and morbidity, it is desirable that more practical experience should be required of medical students and pupil midwives during their training in midwifery, and that additional post-graduate courses should be arranged for doctors and midwives practising midwifery, and all possible encouragement should be given to them to attend such courses periodically."

Approval as lecturer was granted to Dr. Beatrice Turner, Elizabeth Garrett Anderson Hospital, and Mr. Richard Glyn Maliphant was appointed examiner at the Bristol centre in succession to the late Dr. B. K. Tenison Collins. The new form of advisory memorandum, as to the drugs which may properly be carried and administered by midwives, was approved. The report on the work of the Board for the year ended March 31st, 1934, was approved as amended.

Reports of Societies

SHORT-WAVE THERAPY

A discussion on short-wave therapy took place in the Section of Physical Medicine of the Royal Society of Medicine on November 16th, Dr. J. B. Burt presiding.

Dr. W. J. Turrell discussed the principles which govern short-wave therapy. The fundamental action of all electro-magnetic vibrations, he said, was that of a blow or impact. One of the results of the impact was the conversion of the arrested kinetic energy into heat. When diathermy was first introduced it was supposed that its results were to be attributed entirely to thermal effects, but d'Arsonval had established the fact that when administering high-frequency currents two types were dealt with—namely, currents of capacity and currents of conduction. With the former a dynamic, disruptive, or pounding action must be more in evidence than in currents which flowed freely through a good conducting medium. When high-frequency currents were applied to the human body they encountered resistance of skin and subcutaneous tissues. If these tissues were well bathed in the highly conducting fluids of the body the current would be one of conduction, but there was also set up a dispersive or disruptive action, varying in degree with the shortness of the wave-length, the energy applied, and the viscosity and dielectric hysteresis of the tissues concerned. A most noticeable feature in short-wave therapy was the very slight appreciation of heat during administration. In this way burns were more likely to occur than in diathermy, because the patient at the time did not experience heat sensation. The "burns" differed from the true heat burn of diathermy, being far more painful, owing to the induration of surrounding tissues; he had himself seen only two, but they were not uncommon. Redness of the skin following diathermy quickly disappeared, but that following short-wave therapy persisted for some time. The first was a vaso-dilator effect produced by heat, the second an extravasation effect caused by the pounding effects in the skin area. Surprisingly quick results were obtained by short-wave therapy; he had certainly not observed such immediate results in any form of physical treatment. Perhaps the most striking were obtained in certain varicose conditions which had shown prolonged resistance to other forms of treatment. He had successfully treated two cases of boils, and he thought short waves might be useful in some skin diseases, notably psoriasis.

Dr. A. Eidinow related experiments to determine whether there were marked differences between the biological action of diathermy currents of above 300 metres in length and that of the ultra-short high-frequency currents emitting wave-lengths as low as 1.9 metres. The final physiological action of high-frequency currents was heat, but it was claimed by many that, apart from heating effects, ultra-short waves had specific action on certain tissue cells and on bacteria. In his experiments he had studied the effects of ultra-short waves of 4.5 and 3.4 metres on bacteria and blood as tested on the living animal, *in vivo* and *in vitro*, and he had been unable to demonstrate any bactericidal action whatsoever with these wave-lengths provided the tissues were effectively cooled. Experiments carried out by the exposure of a suspension of living bacteria mixed with defibrinated blood had in all cases failed to demonstrate any direct bactericidal action or any change in virulence of bacteria or bactericidal property of leucocytes. The effect of ultra-short waves could be adequately explained by heat effect, varying from a temporary dilatation of the blood capillaries to massive necrosis of the tissues. There seemed to be no other biological effect.

Dr. Justina Wilson said that she had used short and ultra-short waves now for about nine months. It was the character and function of the capacity current not to excite the skin and subcutaneous tissues, but to go right through all the tissues down to the depths. This was not a case of bombardment, and there was no disruption of atoms; it was a vibratory effect. She had given 500 or 600 treatments in hospital and private practice, and never had seen or heard of a burn. If a few simple precautions were taken burns were not likely to occur. So far as the heating effect went the resistance of the tissues no longer played a part in short-wave therapy as it did in diathermy. But the outstanding difference was the peculiar way in which the ultra-short waves acted on acute infective conditions and conditions of suppuration. She had found great advantage in the Pandora type of apparatus with very high energy output and continuously changeable wave-lengths of from 7 to 3 metres. The spark-gap apparatus gave insufficient power for dealing with wave-lengths of this order. Extremely good general treatment to the whole body could be given, however, with a spark machine and 15-metre wave-length—far better than general treatment with diathermy. She begged that the profession would take up this new therapy, encouraging the making in England of adequate machines, both in quality and in range; otherwise it would get into the hands of the quack.

Dr. J. H. Douglas Webster thought that Dr. Wilson's condemnation of the spark-gap method was premature. Having had six months' experience with a spark-gap apparatus he was able to say that certain types of cases benefited. These included fibrositis, headache and neck-ache (due, perhaps, to wind on the back of the neck when motoring), sciatica, lumbago, bladder irritability, and also, as he had stated in a letter to the *British Medical Journal* of November 10th (p. 882), those distressing colds which began with fever and depression and pain in the trachea.

Dr. May of Freiburg (who did not care to trust his English, and was "interpreted" by Sir Robert Stanton Woods) said that in his clinical experience of this method, which extended over four years, he had found a very pronounced depth effect depending on the wave-length, and this was even more pronounced than any surface effect. With regard to Dr. Eidinow's experimental work on bacteria, his criticism was that there had been a very arbitrary choice of wave-length (3.5 to 4.5 metres). His own experience went to show that there was not only a diathermic or heating effect, but also a specific effect.

Dr. Kerr Russell stated that he had given a large number of ultra-short-wave treatments. The technique was most important in such conditions as sinusitis, of which he had treated eleven cases with very good results. He had seen two burns, but in both instances he was aware of the slight mishap—such as accidental contact with the cables—which had caused them. He had treated twelve cases of boils, also with good results, and six dental abscess cases which had not shown a favourable response to diathermy, but had done well with ultra-short-wave treatment.

Dr. TURRELL and Dr. EIDINOW briefly replied, the former urging that the idea should not get about that burns could not happen: the absence or slightness of the sensation of heat experienced at the time made the treatment deceptive in this respect.

RADIOLOGICAL DIAGNOSIS OF GASTRO-INTESTINAL CONDITIONS

At a meeting of the Section of Radiology of the Royal Society of Medicine on November 16th, with Dr. F. HERNAMAN-JOHNSON in the chair, a lecture was delivered by Dr. B. R. KIRKLIN of the Mayo Clinic on "Problems of Diagnosis and their Solution by Radiological Examination of the Digestive Tract."

Dr. Kirklin began by saying that in the United States the medical profession had sought to impress the public, by broadcasting and otherwise, with the need for seeking medical counsel concerning all symptoms, however trivial, in order that malignant growths might be discovered at a time when there was a chance of cure. Speaking as a radiologist, he claimed that it was only by *x* rays that the earliest cancerous growths of the alimentary canal could be found. Similar considerations applied to certain non-malignant growths, which could be treated with greater success early than late. He dealt in turn with some symptoms or signs which called for a thorough radiological examination of the alimentary canal. The first of these was haemorrhage, which was an urgent indication for radiological investigation. Here peptic ulcer was so often the cause that it might be the only condition considered by the clinician, but, as he showed by a series of cases, other conditions, such as a small growth in the œsophagus, might give rise to similar haemorrhage. Unless radiological examination was so carried out as to permit direct frontal inspection, small lesions of the stomach would certainly escape observation. It had always been his practice to make a complete study of the mucosal pattern after the first swallowings of barium. Bleeding from the rectum called for careful examination of the colon. In one such case by the double-contrast method—that is, insufflation of air following barium enema—a very definite polypoid growth was located at the juncture of the descending colon and the sigmoid, and proved to be a low-grade adenocarcinoma.

One of the most perplexing signs was anaemia when not accompanied by other manifestations. To discover its origin often entailed laborious investigation. In every case of unexplained or simple idiopathic anaemia a radiological study of the gastro-intestinal tract should be made. He described the case of a man of 54 whose blood picture was quite typical of pernicious anaemia, but because of the routine employed in these cases the stomach was examined, and on the posterior wall, very near the greater curvature, two very definite adenomatous polyps were discovered, which proved to be of low-grade malignancy, and the removal of which cleared up the condition. In another case, where some anaemia seemed to be the only sign, it was elicited that there was slight bleeding from the rectum. By the usual barium method nothing abnormal was visible, but the double-contrast method revealed a small, round, pedunculated polyp, which proved to be a benign lesion of the colon. With the double-contrast method it was very important to make stereoscopic films, because only in that way could these shallow defects be differentiated from the contents of the bowel. Loss of weight without any other objective manifestations of ill-health was sometimes regarded lightly by the patient, but few physicians would underestimate the gravity of the sign. It might seem illogical to give consideration to cancer of the stomach or colon in such a connexion, but actual cases proved that that was not so. The onset was insidious, and radiological examination should be among the first tests applied. In one woman who had lost twenty-four pounds in three months radiological examination showed a rather large ulcerating carcinoma in which the only symptom was loss of weight; there was an ulcerating carcinoma involving the distal half of the lesser curvature of the stomach of a rather high degree of malignancy. Recurring vomiting without obvious cause was such an emphatic reason for radiological examination that there was no need to labour the subject, but nausea, especially when slight, was not an impressive symptom, yet it might be the sole indication of a serious condition of the stomach. In one patient with persistent nausea a very small lesion was discovered on the lesser curvature, the radiological picture including the typical meniscus sign, which was quite indicative of an ulcerating carcinoma of the stomach. On exploration a perforating lesion was found.

In patients with epigastric pain after taking food one would, of course, suspect the presence of a peptic ulcer. It was not always easy to distinguish between gastric and duodenal ulcer and between benign and malignant ulcer, and here the radiologist could be of service. In duodenal ulcer a deformity of the duodenal bulb, if constant, was characteristic. Another type of duodenal ulcer which might be overlooked was one that revealed itself under barium meal examination, when, after the barium had been pressed out, a very definite flake remained behind. This meant that there was a crater ulcer without deformity of the duodenal bulb. Workers at the Mayo Clinic now thought that in a certain group of cases they could recognize duodenitis, and differentiate it from simple duodenal ulcer. If there was a transient deformity of the duodenum, the deformity not being constant in character, and the duodenum was very irritable and spastic, the barium rushing through, and, in addition, if there was a rather fine reticular network of mucosal pattern, it was felt to be a very definite radiological picture of duodenitis. The criteria for differential diagnosis between benign and malignant ulcers of the stomach on *x*-ray examination were as follows:

Benign	*Malignant*
Niche usually less than 2 cm. in diameter.	Niche exceeding 2.5 cm. in diameter strongly suggests malignancy.
Niche regularly hemispherical; dense; margins sharply defined.	Niche often conical or irregular; faint; margins poorly defined.
Ulcers on lesser curvature, not over pylorus.	Ulcers on greater curvature almost invariably malignant; ulcers on posterior wall likely to be malignant; ulcers near pylorus open to suspicion.
Gastric peristalsis likely to be active.	Peristalsis often diminished or absent.
Spastic manifestations common; narrowing of antrum; hour-glass contraction.	Spastic manifestations rare.
Rugae commonly accentuated and converging towards niche.	Rugae adjacent to niche often faintly marked or effaced.
Pylorus spastic.	Pylorus gaping.
Localized tenderness over ulcer.	Ulcer seldom tender to pressure.

Dr. Kirklin went on to describe one of his errors, which had taught him much. The case was that of a middle-aged woman with a history of cholecystitis. In the course of gastric examination a definite annular defect was found radiologically. He made a diagnosis of annular carcinoma of the stomach, and because of that diagnosis and gall-stones it was thought advisable to operate. Much to his chagrin no carcinoma was discovered, but the surgeon found a definite smooth mass, which he thought was a simple hypertrophy of the pyloric muscle. In an endeavour to differentiate these conditions radiograms in a series of pyloric hypertrophies were examined, and it was found that a true case of pyloric hypertrophy had two distinctive features: (1) a slight invagination of the bulbar base, which was thus rendered concave, so that the shape of the bulb resembled that of a mushroom; and (2) a distinct cleft in the inferior border of the elongated canal, at about its middle, the anatomical basis of which had recently been established by the work of Twining of Manchester. On the basis of at least one of these two signs in combination with prepyloric canalization it had been possible to make a diagnosis in several cases. He dealt also with cases following constipation and diarrhoea calling urgently for radiological investigation of the colon; the shortness of the history here might be important. Again, cases with only indefinite peri-abdominal symptoms

sometimes showed on radiological investigation a perforating lesion on the greater curvature which appeared, radiologically at least, to be malignant. The smallest malignancy he had ever had the opportunity of recognizing was an ulcerating carcinoma 1 cm. in diameter in a man who came with quite indefinite symptoms of occasional "indigestion." In conclusion, Dr. Kirklin said that he did not wish to leave the impression that the signals he had described invariably denoted organic disease, or that *x* rays would invariably find it. Often the stomach sent out an alarm when the "fire" was elsewhere. If the clinician availed himself freely of radiological help he must expect to receive many negative reports; but if the findings were interpreted competently *x* rays gave worthy assistance.

The brief discussion, in which Professor A. E. BARCLAY, Dr. R. S. PATERSON, Dr. H. K. GRAHAM-HODGSON, Dr. G. VILVANDRÉ, and Dr. J. E. A. LYNHAM took part, chiefly consisted of complimentary remarks addressed to the lecturer. In response to a request to describe the technique, Dr. KIRKLIN said that the first and most important principle in colon work, whether using the ordinary barium enema alone or with air in addition, was the adequate preparation of the colon. No one would think of examining the stomach while it contained an ordinary meal, and it was just as important to make no attempt to examine the colon while it contained faeces or fluid. The most efficient method was to give the patient 2 oz. of castor oil. This was insisted upon at the Mayo Clinic, where they refused to make the radiological examination without it. A warm, normal saline enema was given next morning, and repeated flushing took place until the solution returned clear. Only then, when the colon was perfectly collapsed, was the condition considered satisfactory for examination. The barium enema was then given, and the patient was instructed to evacuate it, which as a rule he could not do completely. When he returned after such evacuation air was injected under fluoroscopic control. On such injection the patient probably again had the desire to defaecate, when he would most likely eliminate all the barium. This was repeated until the colon was completely free. The air method was not carried out as a routine procedure, but it was done in all cases of bleeding from the rectum if the other methods were negative. This examination was not as laborious as it sounded, and, on the average, when one had become accustomed to the technique, a patient could be examined in from fifteen to thirty minutes.

PSYCHOLOGY AND RELIGION

At the meeting of the Section of Psychiatry of the Royal Society of Medicine on November 13th, Dr. DAVID FORSYTH delivered his presidential address on "Psychology and Religion."

Dr. Forsyth said that modern psychology was in the best position to help in the conflict between religion and science. The light it had to throw on religion, however, did not at all serve to reconcile it to science, but rather showed more plainly than ever the incompatibility of the two. Freud had early pointed out the remarkable likeness between certain religious practices and obsessional neurosis, and had traced many sacramental rites to a common origin. Conscience had been found to take shape only about the sixth or seventh year of life, and to be based entirely on parental injunctions and prohibitions. Nor was the idea of God ever found in early childhood. A child's feeling for its father would decide the nature of its first feelings for God. The attributes that grown-ups customarily attached to God were those which had previously been experienced in the father. Children developed along one of two lines: those who gradually established their self-dependence outgrew the theistic stage, while others maintained throughout life dependence on a heavenly father. The latter line was, psychologically, a partial failure to mature. The sense of guilt and shame was also first experienced about the seventh year, arising from conflict between the child's inclination and the parent's wishes. There seemed to be a relation between the vast stores of guilty feeling finding daily expression in religion and the corresponding huge amount of misunderstanding and mishandling of children whereby their animal biological tendencies were checked and damaged. The less a child's guilt and shame were appealed to, the better its chance of growing up happy.

Prayer was one of the many ways of expressing a wish, and by invoking a greater authority it revealed itself as a survival of infantile dependence on a parent. The frame of mind favoured by the devout of every religion for prayer and worship seemed indistinguishable from the emotional state of auto-suggestion. Psychology had found no further evidence for the existence of a soul, but had observed that the idea arose from the implicit belief of savages in the reality of their dreams. It suggested the interesting possibility that the religious mind was essentially the child mind, incapable of discriminating reality from imagination. The reason for the almost universal belief in immortality needed accounting for, and, indeed, the idea was found also in modern science. It was as if the biological fact of immortality had come all the way through to psychological expression as a religious belief. A general relation between sexuality and religion was evident. Conversion, for example, was essentially a phenomenon of adolescence, and psychologically was no other than the new strong tide of sexual feeling being deflected into religion. The check to its usual course was the outcome of undue strictness in earlier training.

The almost universal human need to approach God through some intermediary was at first sight a strange one. Its psychological explanation was to be found in the common awe and fear of the father felt by the small boy, who preferred to go to his mother and ask her to intercede for him. Sadism was easily recognizable in religious persecution and spread of the faith by sword. Masochism was exhibited in the widespread habit of self-denial, penance, mortification, and martyrdom. The teaching of Mahomet was essentially sadistic, and that of Christ essentially masochistic. In the early days of Christianity Europe had been governed by violence, the rulers being sadism personified. Christianity had always been imposed from without and above, it being well in the interest of the rulers that their subjects should embrace such a submissive religion. At the same time Christianity eased the sufferings of the oppressed. History had no record of a time when the aggressive few were not ruling the submissive many, and Christianity had become a political force to help them.

In the concern of religion with the supernatural lay the cause of perhaps the deepest cleavage between religion and science. Infants became very familiar with what was going on in their psychic world while they were still learning their first lessons about the real world. For a time, therefore, they could only regard the psychic world as real and the outer world as part of it. Later they began to recognize the differences and the existence of two kinds of truth—psychic truth and objective truth. Infants were entirely, and children largely, incapable of discriminating between the two. At one moment a mental image took shape, and was seen as if it were outside the child; at another moment the real mother disappeared through a doorway or behind a screen. Apparition or corporeal form dissolved equally suddenly, completely, and inexplicably. The spiritual world was recognized by psychologists as another product of the fantasy-making function of the mind, which existed in all normal people, was more noticeable in neurotics, and was most marked in the insane. The whole world-wide mysterious business of gods and their worship was an example of projection on a colossal scale. The Christian Church had vigorously defended miracles against the criticism of science: this was understandable when it was remembered that in the realm of psychic reality natural law did not operate, but the miraculous was happening daily, hourly, and momently. The more this imaginative faculty was cultivated by the religious-minded the more familiar they must become with miraculous events. The vitalists among the scientists were mechanists as far as established science

went, and reserved their vitalistic views for unsolved problems. Their scientific sense ceased to work when confronted with the unknown. The probable explanation for such a failure of mental function was that fear had paralysed it. Fear of the unknown was one of the commonest terrors of childhood. Psychic truth, then, was an expression of the pleasure principle, and objective truth of the reality principle. Magic, religion, and science were three expressions of normal psychical activity, magic and religion appearing earlier in children, and being deeper and more primitive. Of the two, psychic truth was the more primitive, and expressed the deepest needs of the individual, and objective truth was the more highly acquired and best served in subduing the forces of nature in the interests of the individual. Neither could be disregarded, and the strife between them could not cease until both were directed to a common end. There was an antagonism between them amounting to incompatibility, and modern civilization must take its choice. Only a fraction of the total human energy available for social enterprise was being used in the service of science ; very much of it was still running to waste in the interests of religion. The need was to cease pleasure-thinking, and use it in advancing science. In this way psychic and objective truth would be directed to a common end. Science alone could not satisfy.

MEDICAL LICENSING AND TEACHING IN THE PROVINCES

At the meeting of the Manchester Medical Society held on November 7th Professor J. A. Nixon of Bristol read a paper entitled " Licence to Practise and Liberty to Teach in the English Provinces."

Giving a brief description of monastic medical teaching at Monte Casino, a Benedictine monastery founded in A.D. 543, and the Arabian School of Medicine at Salerno, Professor Nixon said that organized teaching dated from the eleventh century in England, at a time when the craft gilds originated in this country and the barber-surgeons instructed their apprentices. This system of pupilage obtained for general practitioners from the twelfth century up to 1880, and for a time there existed, side by side with it, monastic medical teaching with hospital practice such as was founded in the Priory of St. Bartholomew in London. The Universities of Oxford and Cambridge, which were well established by 1209, when 300 students and professors withdrew from Oxford to Cambridge, taught medicine without hospital practice, as was the case in all universities until the foundation of the Edinburgh Infirmary in 1729. In 1363 an Act of Edward III compelled all surgeons to belong to one of the gilds (not necessarily the Barbers or the Barber-Surgeons) if they wished to practise in a town where the gild system prevailed. In 1421 medical practice was first regulated, and Henry V directed that no one should practise in physic unless approved by a university, and surgery by the Masters in that Art. In 1506 James IV of Scotland made anatomical instruction compulsory for surgeons and barbers in Edinburgh. After this time demonstrations in anatomy were the rule in the Barber-Surgeons' Companies all over England. In 1511 episcopal licences were introduced, whereby the bishops or their vicars-general examined medical practitioners, and, being satisfied of their proficiency, and in some instances of their orthodoxy, licensed them to practise. There was a singular example in 1524 of a licence granted by Thomas Cromwell, permitting " Roger Smyth, Citizen and Grocer in London, to practise physic and surgery in any part of the realm." The lecturer was at a loss to explain in what category this licence fell. In 1536 the monasteries were suppressed, and with the suppression hospital practice disappeared. During the sixteenth and seventeenth centuries the educational system was that of apprenticeship to barber-surgeons, or, in some instances, to apothecaries, for the Apothecaries' Society of London had been founded in 1617. This system consisted of apprenticeship to established practitioners, supplemented by gild lectures and demonstrations of anatomy in towns where gilds existed, but without hospital practice.

The reign of Charles II saw many radical changes. In 1662 the Royal Society was founded, and scientific study began to arouse some interest. But alongside of this birth of scientific study there were to be found instances of licences granted to mountebanks to vend medicines and practise medicine and surgery in any city, town, or borough in the kingdom. By the end of Charles II's reign the opposition to the sale of monopolies was so great that all action which could be construed as restraint of trade was held to be contrary to the public interest. Among other monopolies licensed medical practice was condemned, and anarchy prevailed. The gilds were forced to return their Charters in 1683. Thus, soon after the beginning of the eighteenth century, the Barber-Surgeons' and Surgeons' Companies ceased to attract candidates for admission. Their monopoly of practice was gone, and with it the value of their licences. The period of their demise fortunately coincided with a new impulse to found hospitals. The Restoration had meant a revival of commerce, the thinkers of the nation turned their attention to science, and both commerce and science reacted on religion. The Edict of Nantes, 1685, caused exiles from France to swarm into England and all Protestant countries. They brought with them treasures of character, as well as skill in new crafts and industries. This religious and intellectual revival was responsible for the foundation of hospitals all over the country, of which the first was St. Peter's in Bristol, founded by the Corporation of the Poor in 1696. This was not, strictly speaking, a charity hospital, although many voluntary contributions of money were given for its foundation, and Dr. Thomas Dover gave his professional services gratuitously. The foundation of many other charity hospitals followed in quick succession: 1710, York ; 1719, Westminster ; 1737, Bristol ; 1753, Manchester. Among the promoters of these hospitals were many medical men ready to give their professional services gratuitously. From the earliest days surgeons were allowed to bring their apprentices to assist them and to receive money for teaching their pupils. This right to teach pupils at the hospitals gave such surgeons an advantage over private practitioners unconnected with any hospital. Henceforth apprentices were rarely satisfied with instruction in private practice alone. Without any force of legislation all medical students who were able " walked the hospitals," either in the capitals or in the provinces. These medical students were not as a rule the illiterate men of low social standing depicted by the novelists. The records show that they were frequently sons of gentlemen of good position, and the standard as to social position of the pupils and officials at the Bristol Infirmary was very high.

Whilst opportunities for hospital study were increasing the Government made scarcely any attempt to see that medical practitioners were qualified to practise. The gilds had lost their authority. The bishops' licence was no longer required. The areas of jurisdiction of the colleges in the capitals were very restricted. Apparently the slave trade called for closer supervision of ship surgeons, and the professional standing of many of the " African " surgeons was exceedingly high—notably, Falconbridge, whose evidence was one of the powerful factors in bringing about the abolition of the slave trade. An Act passed in 1789 required surgeons on the " African " ships to produce certificates of having passed an examination at Surgeons' Hall in London, or at the College of Surgeons of Edinburgh or Dublin, or at " some publick or county hospital." Under this Act the surgeons of the Liverpool Infirmary met once a month regularly between 1789 and 1807, examining 634 candidates and passing rather less than 500. The lecturer could not discover records of any other public or county hospital exercising this right. There seemed to have been very little attempt made to license private medical practitioners. The qualification of a doctor was ability to get patients. There were obvious advantages in having studied in recognized hospitals under competent teachers, and very shortly after the revival of hospitals the hospital surgeons began to form private medical schools, where anatomy was taught regularly. There was keen competition to form these schools in the great provincial cities such as Manchester, where schools of medicine or anatomy were started.

In 1800 the Royal College of Surgeons in London was granted its Charter, and aimed at obtaining a monopoly for teaching and licensing all surgeons in the realm. It was given practically no compulsory powers, and unlicensed practice flourished unchecked. The licence of the College was optional, but the numerous independent schools quarrelled for recognition and the right to prepare candidates for examination by the College. In addition to the practitioners licensed by the Royal College of Surgeons there were many general practitioners apprenticed under the Society of Apothecaries. The apothecaries could take no fees for attendance, but could charge for their medicines. At length the Apothecaries, in 1815, obtained an Act of Parliament enabling them to hold an examination for all England and to prosecute unqualified apothecaries. The provincial medical schools then began to claim recognition to prepare candidates for the Apothecaries' examination and licence. The College of Surgeons refused to recognize the provincial hospitals as complete clinical schools, and insisted that all candidates for its examination should spend some time "walking" a London hospital. The idea of the College was to make all candidates come to London, and its opposition to the claims of the provincial medical schools was unrelenting. But the London surgeons reckoned without the Apothecaries and the powers conferred on them by the Act of 1815. In 1821 Jordan's lectures in Manchester were recognized, and the barrier against provincial teaching was broken down. The College, faced with the prospect of provincial candidates ignoring its licence and preferring that of the Apothecaries, was driven to surrender to Manchester in 1834. The open-mindedness of the Apothecaries' Society had established once and for all the provincial medical schools, but its influence was going to be once more exerted in an unexpected way. When the *Register*, set up by the 1858 Act, was opened a woman doctor, Miss Elizabeth Blackwell, made successful application to be entered on the English *Register* by virtue of her American medical degree (M.D.Geneva). This did not open the door for other women practitioners unless they could secure a medical education and a licence from some British authority. Miss Elizabeth Garrett (Anderson), having applied without success to the other examining and licensing bodies, was in 1862 admitted to the examinations of the Apothecaries' Society, and eventually obtained its licence to practise, which entitled her to be placed on the *Medical Register*. The provincial schools owed their whole existence to that society, whilst it should also be held in high esteem for throwing open the medical profession to women. In 1880 the Victoria University was the first in the provinces to receive its Charter. By a natural corollary the right to confer medical degrees was shortly (in 1883) granted to that university in Manchester. The year 1880 saw also the abolition of medical apprenticeship.

By slow degrees the responsibility for teaching and the right to license tended to be controlled by the same educational authority. The licensing corporations with no responsibility for teaching had come to the end of their useful existence. They did not now contribute in any way to the progress of medical education. But there was an increasing danger that they might multiply the issue of diplomas in special subjects in which they offered no instruction. This tendency should be very closely watched and discouraged. If specialist diplomas were necessary it was essential that they should only be issued by corporations which accepted responsibility for giving instruction. Some of these diplomas were issued by universities which could offer facilities for study in particular branches of medicine. Such courses of study might well be encouraged. On the other hand, there were others issued by what must be designated as educationally irresponsible bodies. The time had come, in Professor Nixon's view, for irrevocably combining the licence to practise with the liberty to teach. The privilege of educating recruits to our profession was more important than the responsibility for examining and licensing.

The address concluded with a quotation from a sermon by Dr. Dell, who was Cromwell's chaplain, and was intruded at the Commonwealth as Master of Gonville and Caius College. He was the first to suggest that there might be other universities than those of Oxford and Cambridge. "Doubtless it would be more suitable and more advantageous, to the good of all the people, to have universities or colleges, one at least in every great town or city in the nation, as in London, York, Bristol, Exeter, Norwich, and the like. . . ."

THE ALLERGIC STATE

At a meeting of the Pathological Society of Manchester on November 14th Professor O. C. W. PRAUSNITZ discussed "Idiosyncrasy."

Dr. Prausnitz said that case-histories of urticaria, asthma, and digestive hypersensitivity demonstrated the general uniformity of the chief symptoms, which, no matter what the exciting cause, were fairly independent of the particular tissue affected. This was well illustrated by researches on hay fever. The fundamental work was carried out by Blackley of Manchester, who, himself a hay fever patient, in 1873 described the characteristic features of the malady and cleared up its aetiology; he also found the way to prevent the onset of the attacks. Dunbar and Prausnitz studied the aetiological agent of the disease, and prepared an antiserum, which was shown to act not as an antitoxin, but as a kind of cytolysin. Comparison of this and kindred diseases with anaphylaxis had led the speaker to demonstrate in the serum of hypersensitive patients a substance which transmitted the sensitive condition to normal persons. The chief feature of the test—the Prausnitz-Küstner test—was to inject intradermally 0.1 c.cm. of the patient's serum into a normal subject, and to inject into the same spot on the following day 0.1 c.cm. of a suitable dilution of the causative agent. A local urticarial reaction developed: there was no danger of general sensitization to the person subject to the test. This method was applicable to many forms of hypersensitivity. The aetiology of hypersensitivity was twofold. (1) The attacks were brought on, probably in every case, by a specific agent. The specific antibodies in the patient sensitive to this agent would liberate from it some decomposition product, perhaps Oriel's P-substance, which caused the lesions. (2) The liability of certain persons to produce such antibodies must depend on a constitutional factor, which in many cases was inherited. Treatment was directed against the agent by desensitization with the specific substance or non-specific substances—for example, peptone. General measures served to lower the vagal hyperexcitability present in most cases; this was sometimes achieved by the administration of calcium preparations.

COCCYGEAL SINUS

At a meeting of the Liverpool Medical Institution held on November 8th, with the president, Dr. J. MURRAY BLIGH, in the chair, Mr. J. B. OLDHAM read a short paper on "Coccygeal Sinus."

Mr. Oldham reported a series of twenty-three cases of coccygeal sinus seen since 1933, fourteen of which were in female patients. Twenty were infected when first seen. Of these nineteen were excised and the wound sutured, and primary union was obtained in all. Mr. Oldham considered that if primary union was to be obtained there must be asepsis or adequate antisepsis, avoidance of post-operative infection from the anus, complete haemostasis, avoidance of buried absorbable sutures and ligatures, obliteration of the cavity left after excising the sinus, and the use of an everting stitch that would overcome the tendency of the skin edges in this region to turn in. The patient was prepared as for haemorrhoids, and after operation fluids only were given; in this way the bowels are kept unopened for six to eight days. A wide elliptical incision was made down to the sacro-coccygeal ligaments. Haemostasis was secured by forcipressure and hot packs. The cavity was obliterated by deep sutures—usually six—of silkworm, which passed through all the thickness of the tissues in the edge of the cavity

left after excision, and also took a bite of the ligaments in the dorsum of the sacrum. Mr. Oldham noted that in eighteen of his cases there were secondary sinuses, and of these fourteen opened on the left of the mid-line. In only one case had a correct diagnosis been made before the case was referred for consultation. This failure to make a correct diagnosis Mr. Oldham considered natural, as in only one of the standard English textbooks of surgery was coccygeal sinus even mentioned.

Spinal Tumours

Professor HENRY COHEN read a paper on "Hour-glass Tumours of the Spine." He said that in a series of fifty cases of compression paraplegia due to tumours of the spinal canal he had observed three cases of so-called hour-glass tumours which merited separate clinical description, because, despite their varied pathology, they displayed characteristic features which gave rise to special problems, both in diagnosis and in treatment. Professor Cohen confined his detailed records to those cases having extradural and intradural masses joined by a narrow pedicle passing through an enlarged intervertebral foramen. He emphasized that any level of the spine was a possible site for such a tumour which might arise from nervous, fascial, osseous, and other local tissues. These tumours displayed the usual symptomatology of spinal compression with corresponding changes in pressure and chemistry of cerebro-spinal fluid, but additional features which merited emphasis were: (1) the frequent and severe root pains which resulted from the situation of the tumour; (2) the presence in the cervical, and occasionally in the lumbar, region of a palpable mass; and (3) pain on movement of the spine, rigidity, etc., arising from the vertebral damage. The *x*-ray picture was in most cases typical, though commonly interpreted as tuberculous disease of the spine with secondary abscess formation. In order to prevent recurrence of the tumour, both intraspinal and extraspinal portions must be removed, the primary attack being on the intraspinal portion. In the discussion which followed, Dr. G. S. SWAN said that in a case under his care the first symptom was severe pain along the course of a nerve, which Professor Cohen had stressed as an important point in the differential diagnosis. For about six months before the onset of pressure symptoms the patient had severe "neuritis" of the left arm. Pressure symptoms arrived suddenly and affected the leg arm and leg. He was then seen by Professor Cohen, and later operated upon by Professor Kelly. Convalescence was uneventful, and, except for slight paresis of the left arm, relief of symptoms was complete. The patient had been at work at his old job as a labourer, carrying heavy loads, for over two years. He stated that he was quite well, and able to do the heaviest work. There was no trace of any paresis, and recovery seemed complete.

WILLETT'S FORCEPS IN PLACENTA PRAEVIA

At a meeting of the North of England Obstetrical and Gynaecological Society held at Liverpool on October 26th, with the president, Professor DOUGAL (Manchester), in the chair, Mr. C. H. MARSHALL (Liverpool) read a note on "Willett's Forceps in Placenta Praevia."

Mr. Marshall said that this method was introduced in 1925 by the late J. Abernethy Willett. He considered that the simplest means of controlling bleeding in cases of placenta praevia was to puncture the membranes and make downward traction on the presenting vertex by means of Martel's scalp forceps, which had since been modified and called after him. The method involved minimal handling, and consequently less risk to the mother and a better chance for the baby. No large series of cases treated in this way had been reported, although the principle has been used sporadically in this country and elsewhere. At Liverpool Maternity Hospital between 1926 and 1931, 170 cases of placenta praevia were treated either conservatively or by podalic version or Caesarean section with fourteen maternal deaths (8.2 per cent.). Less than 12 per cent. of the babies of the cases treated by version survived. In 1932, 1933, and the first ten months of 1934, 118 cases had been treated with four maternal deaths (3.4 per cent.); 50 per cent. of the babies of the cases treated by Willett's forceps survived. The use of Willett's forceps was introduced in 1932, and an increasing number of cases had been treated by it, with a corresponding decrease in the number of versions. The percentage of cases treated by Caesarean section in each year had remained about 20.

As regards the method of application, the lithotomy position was desirable but not essential. Anaesthesia was not used in a very anaemic patient; indeed, it was often omitted in multiparae. It was important to remove any clots present from the vaginal vault; this could be done simply by inserting a Sims's speculum along the posterior vaginal wall and then depressing the vulval end. An assistant fixed the head; two fingers were passed into the vagina, and one or both, according to its dilatation, through the cervix. A point was sought where only membranes intervened between the head and the examining finger: this was most likely to be in front, as the placenta was usually found on the posterior wall of the lower segment. The membrane hook was guided along the fingers and the membranes scratched through against the head. Without withdrawing the fingers, the forceps was similarly guided in, opened, pressed firmly against the scalp, and closed. The grip on the scalp was tested by traction, which should control any haemorrhage at once, before the fingers were withdrawn. A cord carrying a pound weight over a pulley at the foot of the bed was attached to the handles of the forceps. If anaesthesia had been used the tension should be controlled with the hand until vomiting had stopped. The forceps was removed when the head had descended completely into the pelvis.

In Willett's method anaesthesia might often be omitted; the manipulations were gentler, less blood was lost, and less liquor escaped than during a bipolar version. The disadvantages of a breech presentation, especially in a first pregnancy, were avoided. Version tended to be used in cases of complete placenta praevia, and this partly accounted for the high foetal mortality. If a de Ribes bag could be inserted easily the forceps could be applied still more easily, and with better results.

Vaginal packing was a bad method, owing to the high incidence of sepsis. It was generally used if the os was closed or nearly so; if there was, as there almost always was, room for one finger and the forceps to pass through the os, the forceps might be applied. When the forceps was applied against the most accessible part of the head and the jaws were closed, a ridge of scalp was raised. If traction was now applied a wider area of scalp was drawn out in the form of a cone, the apex of which was drawn into the internal os; in this way pressure was made on the bleeding surface and haemorrhage at once checked.

In connexion with the indications for its use, Mr. Marshall said that the vertex must be presenting. If the breech was downwards, external cephalic version could be done and the forceps applied, but this was not recommended; it was simpler to bring down a leg. With a transverse lie it was probable that the placenta praevia was complete. With a complete placenta praevia, owing to the profuse haemorrhage which might accompany any vaginal procedure, the mother's interests were often best served by Caesarean section. In an emergency it was probably easier to burrow with the fingers through the placenta and grasp a foot than to apply the forceps to the scalp of a head which was difficult to fix and perhaps even to bring to the middle line. In disproportion, which was seldom met with in these cases, owing to the frequency of prematurity, Willett's forceps was contraindicated. Rarely, the forceps lost its grip and came off before fulfilling its purpose, and this necessitated reapplication or some other form of treatment. It occurred most commonly if the scalp became macerated. On applying the forceps it was important to ensure that the amount of scalp grasped had completely and evenly filled the jaws

of the instrument. Other disappointments were usually due to factors common to all methods of vaginal delivery in this condition; not infrequently the foetus died *in utero*.

In conclusion, the speaker summarized his observations as follows: (1) Traction on the scalp perfectly fulfilled the greatest of its aims—the control of haemorrhage. (2) Fewer mothers would die and more babies would survive if this method were more widely used. (3) The method was simple and could be more easily carried out than bipolar version. (4) No attempt was made to compare it with Caesarean section, which had its own special sphere of usefulness in the treatment of this condition.

Other Matters

Mr. J. St. George Wilson (Liverpool) read a note on "The Aschheim-Zondek Reaction in Genital Tuberculosis." He concluded that this test was commonly positive in association with tuberculous salpingo-oöphoritis; that the presence of a positive Aschheim-Zondek test associated with amenorrhoea when pregnancy could be excluded was suggestive of tuberculosis; and that the presence of a modified Aschheim-Zondek test might indicate healing or retrogression of genital tuberculosis, especially if it had been previously positive. Mr. P. Malpas (Liverpool) described a case of hypersexuality associated with cystic ovaries treated by partial ovariotomy. Dr. J. W. Bride (Manchester) described a case of adenocarcinoma of the corpus uteri associated with squamous carcinoma of the vagina. Dr. C. H. Walsh (Liverpool) described a case of actinomycosis of the ovary, and showed a specimen of tubal chorion epithelioma.

CORRESPONDENCE

Elections to G.M.C.

Sir,—May I have the courtesy of your columns to express my thanks to the registered medical practitioners of Scotland for the renewal of their confidence in their direct representative on the General Medical Council.—I am, etc.,

Edinburgh, Nov. 15th. Norman Walker.

Bacteriological Examination of Milk

Sir,—Dr. J. B. Howell, medical officer of health for Hammersmith, has drawn attention, in the *Journal* of November 10th (p. 882), to the great variation in the laboratory reports he has received on samples of milk submitted for bacteriological examination. I am sure he has not overstated the difficulties, administrative and otherwise, of the present situation.

It may interest your readers to learn that three years ago, with the aid of grants from the Empire Marketing Board and from the Ministry of Health, an investigation was commenced in this school into the technique of the bacteriological examination of milk. Professor G. S. Wilson has been in charge of the work, and has had the advice of a strong consultative committee, consisting of members appointed by the Ministry of Health, the Ministry of Agriculture and Fisheries, the Department of Health for Scotland, the National Institute for Research in Dairying, the Society of Medical Officers of Health, and the London School of Hygiene and Tropical Medicine. It is expected that a full report on the results of the investigation will be published about the middle of next year.—I am, etc.,

London School of Hygiene and Tropical Medicine, Nov. 13th. W. W. Jameson.

London University and its Medical Schools

Sir,—As a member of the Court and of the Senate of the University of London I have been impressed by the very small proportion of students studying at London medical schools for a London degree who actually complete their course and proceed to a degree. That this ratio is indeed glaringly small will be evident when I mention that in one recent instance a medical school reported in a certain year thirty-three students as following courses for the London medical degree, but only one actually graduated. When we consider the very large sum—over £100,000 for the current year—which the Court of the University distributes as grants to the medical schools of London such a result cannot fail to be disappointing.

It has been explained in various ways at interviews which the Court has held with the medical schools; the principal reason given has been that owing to economic stress students have been obliged to enter practice with lower qualifications than the degree, and have been unable to wait to take the degree itself. They have thus wasted, as regards any university recognition, several years of education of the highest university standard, and their position is all the more galling as London University students at the medical schools meet with large numbers of students who come for their clinical training from the older universities to the medical schools. These students come to London with a degree (usually B.A.), from their university as a result of three years' study in medical sciences, whereas the London University student, after three years' equivalent study, achieves only the second M.B. examination, which is of an intermediate and not a degree status, although the subjects and the level of attainment in them are entirely comparable with those which qualify for a B.A. degree at the older universities. Statistics supplied by the schools demonstrate that the majority of students entering for the London degree pass the second M.B. but are unable to stay the course for the third examination. The London University student is thus obviously handicapped as compared with his fellow-student from the older universities. This is a grievance of old standing, and I submit that the time has come to rectify it in the interests both of the students themselves and of the University, which is deprived of large numbers of students who by the standards of the older universities would have taken a degree. This would be an advantage to the student, even though he failed subsequently to achieve the qualifying examination of M.B., B.S., and the reform would incidentally remove the reproach that the London medical schools produce very few actual graduates of London University.

The remedy I propose is that the Senate should institute a new degree in the Faculty of Medicine, which might have the name of "Bachelor of Medical Sciences," attainable after a three years' course of study. This name is suggested to me by my recollection of the effort made some thirty years ago to found an "Institute of Medical Sciences," which would have covered all the subjects leading to the second M.B. examination, but the name adopted is a secondary consideration so long as it involves a degree. This degree would be a degree in the Faculty of Medicine as the Bachelor of Pharmacy now is. It would take the place of the present second M.B. examination, and would, of course, not be a registrable qualification to practise medicine. To give this degree a standing comparable with the other degrees of the University the standards of the first and second M.B. examination would, where necessary, have to be raised to the level of the intermediate and final examinations in other faculties. Such an adjustment would not be difficult, and the

stiffening of the earlier examinations would not in the long run hurt the student, who would find out his weakness before wasting time upon a hopeless task.

I submit this proposition for consideration by the teachers in medical schools of the University, who are primarily interested in the matter, and this letter is written in the hope of eliciting their views.—I am, etc.,

House of Commons, Nov. 16th. E. Graham-Little.

A Plea for Abolition of the Pelvimeter

Sir,—One of the chief aims of ante-natal examination is to estimate the size of the pelvis, in order to prevent the risk of difficult labour due to disproportion between the size of the head and the capacity of the pelvis. This is done chiefly by a system of external measurements which might, at first sight, be assumed to provide an idea of the absolute size of the pelvis. I am going to suggest that reliance placed upon this method of diagnosis is liable to lead to a large amount of unnecessary inductions of labour and Caesarean sections, and is therefore not only useless but actually dangerous.

Let us ask ourselves a few questions:

1. Is it possible to obtain accurate and comparable readings of the measurements of the external bony points in the living subject? The bluntness of the bony points and the variable covering of fat make it impossible to be accurate within a quarter or even half an inch. Experienced people measuring the same pelvis will usually obtain different readings. A variation of half an inch in an external diameter is within the limits of error, and yet if that half-inch be transferred to an inference of the internal diameter it might seriously influence opinion on the diagnosis of contraction.

2. Do the external measurements, even supposing they can be accurately made, bear any useful relation to the size of the pelvic canal? If we are to infer that the size of the canal is reflected by external measurements sufficiently exact to be of clinical value, then the bony walls of the pelvis must be of substantially the same thickness in all women. But we know this is not true. Further, by external pelvimetry we infer that the distances between the iliac plates, as measured by the intercristal and interspinous diameters, must be closely associated with the size of the true pelvis, which again is not true. It is a common clinical experience that internal palpation of the pelvis, and also often a subsequent normal labour, belie the inference made from reduced external measurements, and, conversely, that difficult labour due to disproportion sometimes follows in women who show normal measurements.

3. Does the absolute size of the pelvic canal within the comparatively narrow limits of the great majority of women have much influence on labour?

4. Are we not liable to stress the importance of contracted pelvis as a cause of difficult labour rather than recognize the much greater frequency of inertia, wrong position of the child, incomplete flexion of the head, and rigidity or spasm of the soft parts?

Experience of labour leads me to believe that too much stress is laid upon disproportion and not sufficient attention is given to other factors. Believing, therefore, that the pelvimeter is unreliable, I would submit, further, that not only is external pelvimetry useless, but that it is positively harmful. Either because measurements cannot be accurately read or because fallacious deductions are drawn therefrom, it commonly happens that a diagnosis of contracted pelvis is made when there is nothing more abnormal than a reduction of the ample pelvic reserve. But, nevertheless, the diagnosis of contraction is made and the woman is advised to have either induction of labour or Caesarean section.

It has been shown by Holland and others that the vast majority of inductions of premature labour for contracted pelvis (or disproportion) are unnecessary, if judged by the subsequent easy spontaneous labours; while, on the other hand, induction by bougies is not without risk. Of 533 septic patients admitted during two years to the isolation block of Queen Charlotte's Hospital 7.3 per cent. are described under aetiology "following induction." Induction of labour is commonly regarded as a trivial and harmless interference; but this is not so, for in addition to its role in the production of sepsis it bulks largely in the aetiology of severe inertia. In forty-nine cases of true and severe inertia (mortality 10 per cent.) induction was performed thirteen times (26 per cent.). Caesarean section performed unnecessarily for a wrong diagnosis of contracted pelvis is even more liable to be followed by misadventure, including not only a mortality risk of 1.6 per cent. (Kerr and Holland), but also later sequelae of various forms. If, therefore, delivery is made by Caesarean section the woman is subjected to a risk four times as great as that of normal labour. This increase of risk is incurred for the woman under consideration largely because of a wrong impression of the size of the pelvis based upon the use of the pelvimeter.

Any measure which will reduce interference in labour, including induction and Caesarean section, and will increase the number of spontaneous labours, will contribute largely to the reduction of maternal mortality. Let us abolish, therefore, the misleading pelvimeter, and in its place rely upon a diagnosis based upon the internal examination of the pelvis, the sacrum, the lateral walls, the subpubic angle, and the "knuckle test" of the width of the ischial tuberosities. In other words, let us examine with our finger the canal through which the child must pass. The final decision must rest upon the capacity to push the head into the brim, though the more experience I have the more I rely upon the internal palpation of the pelvis than upon the relation of the head to the brim. It is said that the best pelvimeter is the child's head; I would rather say that it is the instructed finger making a digital examination of the pelvic basin and outlet.

I have taught and used the pelvimeter for many years, but I feel that it is time to reconsider our ante-natal methods, in view of the increasing death rate. A contribution to this stocktaking is a plea to revise our ideas of "disproportion," which can best be done by abolishing the pelvimeter.—I am, etc.,

London, W.1, Nov. 17th. Aleck Bourne.

Puerperal Morbidity and Mortality

Sir,—It would seem from pronouncements in both lay and professional press that we are in for another drive in connexion with puerperal morbidity and mortality. I think it would be valuable, therefore, if we might survey the whole situation from ten years ago, when Professor Munro Kerr launched his first diatribe on the mortality attending childbirth. It will be remembered that the general practitioner was blamed for the high mortality and morbidity rates, and that Professor Kerr advised then that all midwifery in Glasgow should be in the hands of twelve specialists, with ample hospital bed space to fall back upon. It was pointed out then that Professor Kerr's scheme would prove a futility and an expense for the following reason.

The morbidity and mortality rate was heaviest in hospital. It was also as heavy in the private practice of the consultant as it was in the poorest general practitioner practice. Such a position was a greater reflection on the work of the consultant class than it was on the general practitioner class, for in the former, with every facility that money could procure, their returns were as poor as those of the general practitioner, who had to produce his

results under all conditions of poverty, dirt, and degradation. Such a position rendered it an impertinence of the consultant class to ascribe the blame to the general practitioner, and an added impertinence to suggest that this work should be taken from the general practitioner owing to his incompetence and transferred to hospital and specialist attention. Their record made it a certainty that at the very best there would be no fall in morbidity and mortality rates.

It was pleaded ten years ago that before embarking on all this expenditure of public money a lesson might be learned from the records of those general practitioners and nurses who had proved themselves able, year after year, to attend hundreds of midwifery cases with a morbidity and mortality that were practically negligible. All to no purpose. To-day we stand amazed to see the colossal expenditure—largely futile—that has resulted from attempting to put into execution the ill-digested schemes of the powers that be. The situation is a veritable puerperal Passchendaele. Here in this city of Glasgow the effect of all this ramp has been to put midwifery upon the rates. The general practitioner has now practically no midwifery, and some midwives have had to draw parochial relief owing to their cases being hospitalized over their heads. Nevertheless, in the forefront of the experts' programme is the slogan that the general practitioner and nurse should return frequently to hospital for refresher courses in the subject that they are now no longer allowed to treat.

Ante-natal care was to solve all our difficulties. So it might if these centres had been properly staffed with experienced men. Here in this town we offered a general practitioner service in ante-natal work to the public health authorities only to have it turned down almost with contempt. It was made abundantly plain that the public health authorities did not desire our help on any terms. Meanwhile the morbidity and mortality rate goes merrily upwards. Colossal sums have been and are to be spent, while the unprecedented propaganda in the lay press, in which professors and politicians vie with each other in creating scare lines, steadily convinces the wives that caution is best ; and the birth rate falls continuously except among the careless, the reckless, and the ignorant. There is still time for reason to prevail, to cut our losses, and to return to a study of the methods of those general practitioners and nurses who have demonstrated over long terms of years that midwifery can be made as safe as defaecation.

It may astonish Dr. G. W. Theobald (*Journal*, November 10th, p. 850) when I say that the methods which he has discovered give the best results are precisely those that have been in use among general practitioners for a quarter of a century.—I am, etc.,

Glasgow, Nov. 12th. JAMES COOK, M.D.

SIR,—It is perhaps impertinent for a physician who has had no practical experience since his student days in midwifery to intervene in a discussion upon maternal mortality, but may I suggest that obstetric surgeons should consider whether a change in the traditional position during labour and in the subsequent lying-in period might not materially reduce the liability to sepsis. The usual lateral position is surely not conducive to efficient drainage, whilst the dorsal, with the shoulders well raised, would mechanically assist labour, lessen the liability to laceration, and materially hasten the elimination of discharges, in addition to rendering the douching of the parts easy and effectual.—I am, etc.,

H. J. CAMPBELL, M.D., F.R.C.P.

Dartmouth, Nov. 19th.

Obstetric Methods at St. Mary Abbots

SIR,—While congratulating Dr. G. W. Theobald on his report in your issue of November 10th, I would like to challenge his statement that "the morbidity rate was, it is believed, the lowest recorded by any hospital in this country." In the *British Medical Journal* of August 16th, 1924, he will find the records of the Louise Margaret Hospital, 1920 to 1923, reporting 1,850 consecutive maternity cases with three maternal deaths. This is less than half his death rate of four maternal deaths in his 846 cases. Yet at the Louise Margaret Hospital operative intervention was higher—eight Caesarean sections as against his one, and 7 per cent. forceps rate against his 3.5 per cent.

The 1,850 cases had all been seen ante-natally by me with the exception of four, two of which were emergency cases that were fatal. He will find full particulars in the paper I read at Bradford before the British Medical Association. Non-intervention can be carried too far, and I have come to believe that possibly those obstetricians who condemn Caesarean section so loudly do so because their own surgical results have not been so good as those of their more surgically spirited colleagues. I have seen worse damage done with forceps than with Caesarean section, and probably some of the unnecessary Caesareans that are done would fare worse with forceps in the same hands. Statistics, however, are often fallacious, and a few concealed accidental haemorrhages will convert pride into humility, as was my experience later on.

I agree most emphatically with Dr. Theobald that at least three years' continuous practical work and at least 1,000 cases alone fit a man to supervise and offer sound judgement in obstetrics. If the public would turn their attention from criticizing the doctors and nurses, and see to it that the Government and administrators provide a real maternity service for the country, officered by men of obstetric experience, with diplomas of the College of Obstetricians instead of by medical officers of health with the diploma of public health, which has nothing to do with midwifery, better results might be expected. Would the public be surprised if the target was never hit by the guns of its Navy and Army if the artillery were officered by the infantry? Nature exterminates mothers who are bad reproducers. It is pretty wonderful what we achieve in our fight against Nature when you think of so many of the mothers we are expected to rescue from her attempt to improve the race. We will never reach perfection, but if the public think it worth while saving a higher percentage of mothers' lives they must pay for it pretty heavily in cash, and this is not popular. What we might save in mothers and babies will soon be killed off on the roads.

Dr. Theobald seems to advocate a return to old methods that have been tried for years and failed to satisfy us. I prefer to try and advance, profiting by the exhaustive bacteriological work that has thrown light on epidemics of puerperal sepsis, and hence I like masks and dettol at present. But here is an interesting point. He maintains that the normal temperature—98.4° F.—is pathological in the puerperium. To explain this, I have read his routine very carefully, and wonder if it is the war he wages on the alimentary canal that gives rise to this idea. On admission, two ounces of castor oil, then an enema, and another two ounces of castor oil the day after delivery, followed by a purge every night that the mother is in hospital. I am director of a unit where bed-pans are automatically cleaned and then boiled. I take it there would not be much time for this in his unit, and that is why they are flushed and the rims rubbed with pure lysol. Pure lysol is uncomfortable if it reaches certain

parts of the anatomy. But during acute diarrhoea it is difficult to push the temperature up to 96° F., let alone 98.4°.

But the thing that interests me more than all the rest is in his rules for the nursing staff. He says: "A further enema is given towards the end of the second stage." I prefer light anaesthesia, and surely the mothers would too; but is the nozzle introduced also with forceps, for he forbids the fingers to touch the patient's perineum at this stage? Is it true that this method of keeping the bowels in a free state originates in Ireland? Does not the author call it the "Modified Garden of Eden"? Where is the analogy? It leaves me still guessing.—I am, etc.,

London, W.1, Nov. 13th. E. Lawton Moss.

Professor Briggs

Sir,—It is proposed to place a bronze plaque on marble base in the museum of the department of obstetrics and gynaecology, University of Liverpool, to signify that the department was founded by Professor Henry Briggs. It is thought that some old students and other friends may wish to contribute towards the cost, which will be from £80 to £90. Intending subscribers should communicate with J. St. George Wilson, F.R.C.S., 11, Rodney Street, Liverpool, stating what they would like to give. No contributions should be sent as yet.—I am, etc.,

Liverpool, Nov. 19th. J. Hayward Willett.

Dilating the Cervix in Placenta Praevia

Sir,—I do not think W. J. Young's statement (*British Medical Journal*, November 10th, p. 884), on dilating the cervix in placenta praevia, should pass without comment. Recently, in recording fifty cases of placenta praevia I have attended in the past six years, I came across the records of three cases attended by other doctors that terminated fatally. In each of these cases the cervix had been manually dilated to allow internal version to be performed, and in one of them the practitioner wrote to me that he had carried out the dilatation and internal version without anaesthesia. This woman arrived at the hospital in a state of extreme collapse suffering from profound shock, and in spite of every effort to combat the shock died suddenly a few hours later. After the internal version there had been no further vaginal haemorrhage. In the other two cases there had been a number of vaginal haemorrhages spread over a period of days prior to admission. Both died from shock after manual dilatation of the cervix and internal version had been performed.

I would stress two facts now recognized by most obstetricians: (1) That haemorrhages in pregnancy, especially after the twenty-eighth week, render the patient peculiarly liable and susceptible to surgical shock. (2) That the obstetrical manœuvre of manual dilatation of the cervix, more than any other, causes severe shock. So that to dilate manually the cervix in a patient who has had one or more haemorrhages is to invite a fatal termination from shock. The statement "if placenta is detached from uterine wall as far as the finger can reach" contains advice to a line of treatment fraught with great danger. I would point out that:

1. With the patient in the lithotomy position it is possible in many cases of so-called central and marginal placenta praevia to separate more than half the placental attachment from the wall of the lower uterine segment with the finger introduced through the internal os. This would engender severe bleeding, and would add to the surgical shock of manual dilatation of the cervix that of obstetric haemorrhage. (I have seen severe haemorrhage follow vaginal examination performed clumsily by a midwife, with blood spouting from the vulva with each cardiac pulsation. She had detached a small lobule as big as a two-shilling piece, into which a large placental vessel passed.)

2. Such a manœuvre, by further placental detachment, must add to the foetal mortality which is already appalling in placenta praevia.

3. Digital interference with the placental site would add to the risk of sepsis, which is well known to be considerable in these cases. The statement "the whole hand should be passed into the uterus . . . the child turned and slowly delivered" contains a piece of advice which is not in keeping with the accepted practice of our best obstetricians.

I would further point out that:

1. After manual dilatation and internal version it would be best to allow the patient to deliver herself later, after she had recovered to some extent from the shock and haemorrhage.

2. However slowly the delivery is effected consecutive on internal version, further manipulative intervention required for extended arms and the after-coming head is in a number of cases inevitable, with the immediate consequence of added shock to the patient.

3. Full manual dilatation of the cervix could not be attained without grave risks in this condition, and even "slow" delivery through an undilated os entails a degree of added shock, which is to be avoided in the treatment of placenta praevia.

The last statement that ". . . very great prior loss of blood may entail more rapid delivery" contains the germ of very unsound teaching. The patient, shocked and exsanguinated by the haemorrhage of placenta praevia, is in no state for delivery at all. Surely the bleeding should be stopped by the safest possible methods (preferably that of Braxton Hicks) and every immediate effort expended to combat the shock. Some hours later the delivery would be effected with at least a small margin of safety. In this I offer no criticism of Mauriceau's heroic effort to save his dying sister, but point out to practitioners some possible dangers in the treatment of placenta praevia at a moment when the problem of maternal mortality is being reviewed with much anxiety.—I am, etc.,

J. Stanley Coleman, M.B.,
Forest Gate, E.7, Nov. 12th. B.S.Lond., M.R.C.S.

The Duodenum and the Kirby Grip

Sir,—New fashions have a way of setting up some curious by-products, and sometimes these take the form of new problems for the medical man. The advent of the present fashion of bobbing and shingling has caused the virtual disappearance of the hairpin and the appearance, in enormous numbers, of an appliance called the Kirby grip, used as a hair slide. Many girls hold the grip in their mouths whilst their hands are engaged in doing their hair, and every now and then it is accidentally swallowed. In an adult this probably does not matter; the foreign body is generally passed without difficulty. In children it is otherwise. The length and shape of the Kirby grip are such that, though it gets out through the pylorus, it cannot negotiate the fixed curves of the duodenum, and it comes to lie vertically in the second part. Here it will remain for an indefinite time, and no doubt eventually perforation of the bowel would occur in a good many of the cases. I have within the past two months had two such cases under my care, in girls of 2 and 5 years respectively. In both the skiagram showed

the grip lying vertically in the duodenum ; after fourteen days its position had not changed. In these circumstances we felt that operative removal was necessary, but here an unexpected difficulty was met with. The duodenum in a child lies deep, and is not easy to approach ; the surgeon is very loath to make an incision in it because of the well-known dangers of duodenal leakage. An effort was therefore made to push the foreign body up into the stomach, or on round the third and fourth parts of the duodenum into the jejunum. In both patients this was found to be quite impossible.

In my first case, very reluctantly, I incised the second part of the duodenum, extracted the grip, and closed the incision. There was rather alarming vomiting for about twelve hours, but the child happily made a good recovery. One did not care to run such a risk again in the second case, so I made an opening in the stomach, dilated the pylorus from within with the finger, and fished for the foreign body through the stomach and pylorus with a forceps. This presented no difficulty, and the child did well, without any alarming symptoms. This is undoubtedly the proper way to deal with children suffering from this mishap.—I am, etc.,

Department of Surgery, Bristol University, Nov. 11th. A. RENDLE SHORT.

Anaesthetic Explosions from Static Discharge

SIR,—Although attention has been drawn in this country from time to time, as the result of accidents, to the danger of ignition of anaesthetic vapours by such external sources as a light or cautery, it seems to have been generally assumed that the possibility of explosion from static or frictional electricity does not exist here. Such cases, however, have not infrequently been reported from the Continent and from America, and my own experience as given below shows that frictional discharges capable of producing dangerous sparks do occur in theatres in London at present, and that therefore, in the absence of precautions such as the grounding of apparatus and the use of non-insulating rubber, explosions of suitable vapours are to be expected here as they have occurred elsewhere.

On my first visit to a newly built clinic some years ago I was told by a theatre sister that shocks were got from the trolleys. Naturally sceptical, and thinking of ordinary short-circuits, I asked for a demonstration, and was shown that after drawing off the coverlet from a rubber-mattressed trolley a sharp spark, with shock, was obtained on touching the latter. Another example, though less striking, has often been met with in a hospital where, with gas and ether or gas and oxygen, an ordinary two-gallon bag is used with a mask and three-way cock. It has often been noticed—on one occasion before the filled bag was applied to the patient—that particles of fluff, cotton, etc., on it were standing on end and were attracted to the finger, showing that the bag was electrically charged. Further, on stroking the bag with the hand, distinct crackling sparks have been heard, though cautious attempts to ignite ether thereby have so far failed. The first occasion on which this electrically charged bag was noticed having been in the hot, dry weather of last summer, it was thought that this might be an important factor, but it has been met with since on damp, muggy days. The theatre in question has efficient central heating, and the sterilizers are at a distance in an adjoining room, conditions which apply also to the first-mentioned clinic.

It may be assumed, therefore, as stated above, that in modern hospital buildings explosions from " static " may be expected to occur from time to time.

Incidentally, it is of interest to note that Dr. M Tiegel, in an article describing the use of superheated ether vapour in anaesthesia, states:

" Following an ether explosion in the operating room of a surgical clinic, by which persons taking part were seriously injured, the Minister of the Interior has recently issued an edict giving warning of this danger and laying down safety regulations (*Zentralblatt für Chirurgie*, 1934, No. 40, p. 2317).

—I am, etc.,

London, N.W.9, Nov. 19th. R. J. CLAUSEN, M.B.

"German Measles"

SIR,—We may agree with Dr. Summerhayes MacRae (*Journal*, November 3rd, p. 835) as to the unsuitability of the term " German measles." Unfortunately, it has a long start and official recognition. The use of the term " rubella " to parents leads to questions which result in the admission that it is only a scientific name for German measles. It is better, at present, to devote one's efforts to explaining that measles and German measles are separate diseases.

It is not easy to settle a satisfactory nomenclature for this disease. In this country " rubella " is generally accepted as the professional term, but its international ring is deceptive. The Germans call it either " röteln " or " rubeola," and the French " rubéole." As you have pointed out, the official *Nomenclature of Diseases* unfortunately gives German measles first with " rubella " and " röteln " as synonyms ; " rubeola " is not mentioned. The official *International List of Causes of Death*, 1931, gives " German measles," with subsidiary titles of " rötheln " (spelt with the long-abandoned " h ") and " rubella." It gives " rubeola " as a synonym for measles, which must surely be incorrect, and in the *Suggestions to Medical Practitioners* it is stated that " the term is best avoided, as it is used for both measles and German measles."

The term " rubeola " is practically unknown in this country, while " röteln " is too Continental for our use. " Rubella " is clearly the best official title, but it will need many decades to make it familiar to the public.—I am, etc.,

London, W.1, Nov. 13th. H. LETHEBY TIDY.

Spontaneous Regression of Cancer

SIR,—In the Long Fox Memorial Lecture, delivered in Bristol last November, and published in the *Bristol Medico-Chirurgical Journal* (1933, l, 228), Mr. C. Joll declared that he had records of 400 cases of spontaneous cures of cancer. This surprising statement was made in criticism of my method of treating inoperable cancer. I wrote immediately to Mr. Joll and asked him to be good enough to publish details of only twenty really authenticated cases of spontaneous regression untreated by any medical, surgical, or radiological method. Such a publication would be of extreme interest to others than myself.

If one relatively so young as is Mr. Joll can have personal knowledge, or details, of such frequent spontaneous cure it leaves me to wonder whether there is a cancer problem, why there is a need for cancer research, and whether cancer hospitals are necessary, for spontaneous cure must be a thing of everyday occurrence. I have given Mr. Joll a year in which to reply to my challenge, but there has been no answer. He has made an incredible statement in a paper which might be regarded as of some scientific value. I now publicly ask him to

give some proof for his remarkable statement: authenticated details of twenty cases from his list of 400.—I am, etc.,

Clifton, Nov. 11th. A. T. Todd,
Honorary Physician, Bristol Royal Infirmary.

⁂ We find, in the *Bristol Medico-Chirurgical Journal*, that the words actually used by Mr. Cecil Joll were: "It is only fair to state, too, that there are records—some highly circumstantial—of nearly 400 cases of complete spontaneous cure of cancer."—Ed., *B.M.J.*

Ingrowing Toe-nail

Sir,—The letter of Mr. W. Kent Hughes, in your issue of November 17th, and Dr. L. Keyes's article,[1] annotated in the *Journal* of August 11th this year, do not draw attention to the fact that a touch of blue-stone, allowed to dry on, daily for about ten days, will cure any ordinary case of early ingrowing toe-nail. The daily coagulation should be left to peel off and should not be cleaned up. Some of the older country practitioners know this method well, and its use saves much needless suffering and risks. Another method is to cut a V down to the quick in the middle of the nail and to keep it pared. This method takes some weeks and often fails.

Considering the suffering caused by the condition of ingrowing toe-nail and the difficulty of feeling sure that all the matrix has been removed at the time of operation, as anyone knows is the case who has done it often, the advantage of the simple blue-stone method from the patient's point of view is obvious.—I am, etc.,

London, W.1, Nov. 19th. G. H. Colt, F.R.C.S.

Differential Diagnosis of Chronic Rheumatic Disease

Sir,—I am glad of the opportunity afforded by Dr. Copeman's letter in your last issue to correct a misprint in mine of the previous week. For non-articular *arthritis* read non-articular *rheumatism* (eighth line from end).

Incidentally, I did not state that the sign was new. As to its reliability, we must await the verdict of those members of the profession who may try it out. Dr. Copeman's letter should, at any rate, help to stimulate their interest in what I believe to be an extremely important diagnostic sign.—I am, etc.,

London, W.1, Nov. 19th. H. Warren Crowe.

⁂ It was not a misprint. Dr. Crowe wrote "arthritis" and passed it on the proof.—Ed., *B.M.J.*

Dosage of Vitamin D

Sir,—I read the leading article on dosage of vitamin D in the *Journal* of November 17th (p. 907) with interest. I have not yet seen the actual report by the Toronto workers on this subject, but from your review there would appear to be many aspects of their experiments open to criticism. The children were treated at home, where it is impossible to ensure accurate supervision of such vital factors as exposure to sunlight, adherence to standard diet, etc. Hospitalization is essential to reliable data.

I welcome the final suggestion that "the time is surely ripe for an investigation, on an even wider scale than the present one reported from Toronto, to settle by clinical trial, in terms of vitamin D, what is the minimum protective dose at each age period, and what is the best medium for its administration." Might I refer you to my article in the *Lancet* (June 30th, 1934), in which I described, from the curative point of view, experiments similar to those performed in Toronto and, I would suggest, possessing a more scientific basis? In these I found that one drachm of cod-liver oil given daily over a period of six to seven weeks would heal a moderately severe case of rickets at the age of 3 years, and I would presume a smaller dose would prove effective as a preventive measure for a younger child.—I am, etc.,

Cleethorpes, Nov. 17th. James R. W. Hay.

[1] *Journ. Amer. Med. Assoc.*, May 5th, 1934, p. 1458.

Residual Infection of the Jaws

Sir,—Agassiz, the naturalist, wrote: "Every great scientific truth goes through three stages. First, people say it conflicts with the Bible. Second, they say it has been discovered before. Third, they say they have always believed it." I thank Mr. Badcock and Mr. Ainsworth for commenting on my letter calling attention to the Novitzky technique for removing teeth. Their comments may accomplish more than I anticipated my letter would, for they focus attention upon the present methods of removing infected teeth.

If the ordinary method is entirely satisfactory to those who practise it, to those upon whom it is practised, and to those physicians and general surgeons who expect beneficial results to follow the removal of infected teeth of their patients, this pulling method will continue to be used without modification or improvement. There are, however, a not inconsiderable number of dental practitioners, patients, and medical men who are not satisfied. They do not consider this method the epitome and perfection of considerate, careful, complete surgery. Further, in a comparatively recent issue of the *Journal* there appeared a letter or letters complaining of the haemorrhages which physicians are called upon to arrest after the removal of teeth by this method. Medical protective associations are called upon to defend practitioners and settle claims for damages following the removal of teeth by the pulling method. Coroners not infrequently conduct investigations following the employment of the common method. Professor Anderson of St. Andrews spoke as follows, in Dundee, last August:

"I would ask you, gentlemen, as senior members and teachers of the profession, to warn the younger generation to treat these cases of massive extensive extraction as a major operation which should receive full reverence and care in pre- and post-operative treatment."

Mr. Badcock finally declares I have "a good case." It would be difficult for me to disagree with him. But if, as he suggests, I have "marred it," perhaps the following evidence will restore it: *X*-ray examinations of over 30,000 patients in the Mayo Clinic disclose that from 25 to 45 per cent. have roots left in their jaws after incomplete extraction by the ordinary method; 10 to 25 per cent. had infections still persisting in their jaws after the complete removal of the tooth or teeth. Almost any experienced radiologist could duplicate these percentages were he to tabulate the results of his dental *x*-ray examinations of patients who have had more than two or three teeth removed. An experienced radiologist in Paris, two or three in London, and my own personal experience in taking *x*-rays of teeth for twenty-two years confirm these percentages. These examinations, however, disclose only those cases in which nature has been unable to eliminate the infection or the roots after some months or years. There is still another large percentage, I believe, in which nature has eliminated the infection and the undisturbed roots—by extrusion, exfoliation, pus formation, and discharge, which frequently takes weeks, months, years. In the meantime the infection continues, which the extraction of the teeth is expected to eliminate.

I fail to detect any evidence in the two mentioned letters that the Novitzky technique has been employed

consistently on any considerable number of patients and has been discarded because it has failed in any particular to meet the claims made for it. Those who have employed it, however, after having practised the pulling method for years, report to me that they are surprised and gratified when comparing the results of the Novitzky technique with the older method, and note the great reduction in pain, the quickness of healing, the absence of complications, and the satisfaction of their patients.

The absence of reactions and the comparative safety with which Novitzky's technique may be employed on such patients who are seriously ill and in whom infected teeth are believed to be contributing to the condition have been reported by others. Where it is considered dangerous to remove teeth by the older method this method may be used, after proper preparation of the patient, with comparative safety. In regard to convalescence, 95 per cent. return in two, three, four, or five days ; they walk in—are not carried in—to have sutures removed, and not a few to have impressions taken for plates to be inserted in a few days' time. This method is practised "in the patient's best interest." But it is also the dental practitioner's best interest to do complete, careful, workmanlike surgery.—I am, etc.,

London, S.W.19, Nov. 3rd. ALONZO M. NODINE.

Local Treatment of Coryza

SIR,—If you will permit further correspondence on this subject I would like to endorse Dr. Douglas Webster's attitude (*Journal*, November 10th, p. 882), and am glad he mentions the use of short-wave therapy. Admittedly it is not an economic treatment. I have "aborted" some dozen cases which I have come across incidentally, only choosing those in which a cold invariably lasts about ten days. Perhaps more dramatic are cases of tonsillitis —for example, "Wimbledon throat"—tracheitis, and laryngitis, when treated early. Here one treatment usually relieves the symptoms, but should be followed by two further treatments in twenty-four hours to completely clear. When the infection spreads rapidly to the bronchial tubes irradiation with short waves does relieve, but with our present apparatus it is a tedious proceeding to deal with a large field adequately, and so some relief may be given, but reinfection takes place. The treatment is simple in application, with little inconvenience to the patient. I use the six-metre wave-length.—I am, etc.,

London, S.W.1, Nov. 12th. JOHN KALMANSON.

Motor Backache and Neuralgia

SIR,—Dr. Astley-Weston's letter on this subject in the *British Medical Journal* of November 3rd (p. 834), while endorsing the views expressed in my letter of the previous week, suggests that in the proper construction of a motor seat it is important to eliminate the strain due to "cornering." Others have supported this view. In what was an individual description of experience there was no intention to deny other factors which might contribute towards motor backache. Physical build and health of the driver, construction of the seat and its setting, and suitability of the driver to the particular seat are all of importance. Most people try a pair of boots on before purchasing them, but few take similar care that the seat of a new car is suitably placed and shaped.

"T. W. G." points to the importance of the avoidance of lounging by motor drivers. No doubt this is one of the particular offences of the laid-back bucket-seat—it insists on the driver lounging. In seat construction vibration should be damped and the seat well set, and I believe that, while the back should be nearly vertical, the floor should be at approximately a right-angle, level, and of sufficient depth. It might be advantageous to round off the angle between floor and back. The development of a large bulge at a higher level in the back, as commonly provided, is a mistake, I think ; something flatter is really better. But all these points could easily be determined by experiment at any motor works where their significance was recognized.—I am, etc.,

London, W., Nov. 16th. G. H. A.

Medical Benevolence

SIR,—As the son of a general practitioner, and as a subscriber to both the English and the Irish Royal Medical Benevolent Fund societies, may I say a few words on the views expressed in the correspondence now appearing in your columns regarding the alleged indifference of medical men as a whole to the distress among their professional brethren?

To begin with, it appears to be generally forgotten that after some forty to fifty years of day and night work the total estate of a doctor, according to the details which appear in the daily papers, averages the small sum of £3,000. This, he naturally thinks, is the bare minimum amount which gives some security to his dependants ; but quite 25 per cent. of doctors fail to accumulate even this sum. Moreover, there is a constant drain on the country doctor's resources by way of subscriptions to the charities—religious, social, and political —associations, too, which are all bound up with the people among whom he lives, and who look upon him as their guide, philosopher, and friend. Things do not, therefore, appear so rosy when seen from the inner circle of the average doctor's life, and some measure of justice must be meted out to the much-misunderstood non-subscriber to the medical charities, particularly when they are criticized by wealthy specialists and by those doctors living in large towns and cities with large cash and panel practices, whose relations with their patients are not so intimate as that of the country man.

Until such times as an "all-in" insurance scheme, such as that under consideration by the British Medical Association, is in operation, it occurs to me that the Royal Medical Benevolent Fund authorities should consider the advisability of circularizing that numerous body of lay men and women who get good pay as secretaries, clerks, library assistants, and so forth from those institutions associated with the medical profession. These people depend upon it for their living ; they have none of the risks involved in its practice ; they all enjoy sheltered lives, save money, and live to a good old age in the enjoyment of a good pension.—I am, etc.,

London, N.W.3, Nov. 11th. FAIR PLAY.

Whither General Practice?

SIR,—I am interested in Dr. Kenwood's letter in the *Journal* of November 10th, but I venture to think that the problem is not such a simple one as his letter might appear to suggest. He stresses the point that "in many cases patients enter these institutions [the smaller hospitals and nursing homes] *solely* because of the better nursing arrangements and facilities therein provided" ; yet in the smaller hospitals staffed by local practitioners to which he refers the majority of cases are found to be surgical emergencies and road or other accidents, because, with a limited accommodation, the criterion is whether the case is such that treatment in hospital is essential ; and, consequently, by reason of their lesser urgency, cases solely requiring better nursing arrangements and facilities are necessarily few.

The solution of the problem of the entry of the patient's own doctor into these hospitals to undertake treatment is by no means simple. Those mainly concerned are the patient, his doctor, the hospital authorities, and the medical staff, and each of these have points of view which must be brought into harmony for the successful working of any scheme. Without attempting to deal with the subject at all exhaustively, there are a few points to which attention should be directed. It must be remembered that, without constant practice in those branches of medicine and surgery which do not enter into the usual routine work of general practice, one is not able to maintain that standard of efficiency which the patient has the right to demand when in hospital—and the patient and hospital will suffer. Again, the satisfactory treatment of a patient in hospital is very dependent on a close understanding between the nursing staff and the doctor in charge of the case. Consequently, it seems that an entirely unrestricted access to treat patients in a hospital would not make for the efficient working of the institution or benefit of the patient. Moreover, from the hospital authorities' point of view, this free access would make it difficult to obtain a medical staff when all the privileges could be obtained without accepting any of the responsibilities.

As a suggestion, there seems much to recommend the policy of making the medical staff open to all practitioners residing and practising in the district, and restricting the treatment of patients to these doctors who accept their share in the medical administration, routine work, and the treatment of patients from other districts or those whose own doctors do not desire to treat them in hospital. This would ensure that those who have the right to treat patients in the hospital were in close touch with hospital work, the nursing staff, and the administration of the hospital.—I am, etc.,

Mitcham, Nov. 12th. G. M. STOKER.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

The annual meeting of Fellows and Members of the Royal College of Surgeons of England was held on November 15th. Sir HOLBURT WARING, President, was in the chair.

The Council's Report

The PRESIDENT presented the annual report of the Council and called attention to some features of special interest. He said that oversea examinations was a subject which had been very much developed of recent years. In the present year there were to be examinations in Melbourne, for which fifty-eight candidates would present themselves, and in Dunedin, for which there were about twenty-seven candidates. A rather radical change had been made in the Final Examination for the Fellowship—namely, that candidates must have held for not less than six months the post of resident house-surgeon or other responsible post in charge of general surgical patients in the wards of a general hospital recognized by the Council for the purpose. He also stated that for some time dissatisfaction had been expressed with regard to the Primary Fellowship, and the Council had appointed a committee to go through all the complaints that had been made. He believed a number of minor improvements would be made in the examination itself and in the curriculum.

Legislation regarding patent medicines was a thorny subject, and the Council had appointed a special committee to deal with it. The subject had been under discussion at the Ministry of Health and in the profession generally, and, to a less extent, in the licensing bodies. After a very lengthy consideration the Council had come to the conclusion that certain recommendations should be made to the Committee on Scientific Research of the Economic Advisory Council—namely, that the sale of proprietary medicines and appliances should be under the control of the Ministry of Health, and that such control should ensure that the article in question was not injurious, the description of its therapeutic action not fraudulent, and its sale and methods of advertisement not against the public interest; further, that no medicine or appliance should be advertised as a cure for certain specified diseases and conditions.[1] The British Medical Association and other bodies were taking an active part in connexion with this matter, and he trusted that the result of their efforts would be some satisfactory legislation to remedy the present iniquitous state of affairs, first, as it affected the community, and, secondly, as it affected the medical profession.

The President touched on other details in the report, and mentioned the appointment of Dr. John Beattie of Montreal as conservator of the museum and director of research on the retirement of Sir Arthur Keith. The Buckston Browne Surgical Research Farm had now been completed and was working very satisfactorily. With regard to the diplomas issued by the College, during the year there had been 600 new Members, 81 new Fellows, and 154 new Licentiates in Dental Surgery. A number of other diplomas had been issued, including eight in medical radiology. The Council had the right to elect two Members to the Fellowship every year, and this year had elected Dr. G. A. Buckmaster, Emeritus Professor of Physiology in the University of Bristol, and Mr. G. F. Stebbing, surgical specialist to the London County Council. The President added that he, as representing the College, was to open the new building of the Royal Australasian College of Surgeons at Melbourne next March.

A short discussion followed on the reception of the report. Dr. MORTON WHITBY suggested that Members of the College who had been practising surgeons for ten years or more should be allowed to sit for the Fellowship in one stage, instead of two stages; he thought that would be of assistance to many Members who had served during the war. The PRESIDENT replied that this was not a feasible proposition, as the Charter of the College laid it down that there must be a Primary Examination and a Final Examination, but he hoped that measures would be taken which would be to the advantage of the persons to whom Dr. Whitby had referred.

Members and the Council

Mr. F. McG. LOUGHNANE then moved the time-honoured resolution:

> That this forty-fifth annual meeting of Fellows and Members of the Royal College of Surgeons of England reaffirms that the Members, who constitute 90 per cent. of the College, should have some representation on the Council, a similar resolution having been passed forty-four times and never once lost.

In doing so, he said that the Members numbered about 18,000 and the Fellows only 1,800, and the full financial support of the College rested on the fees that came from the Members. It was very undemocratic that those who paid should not have any vote, and it was only fair that the Members should have a vote for members of the Council and that they themselves should be eligible for election to the Council. The Members had approached the Privy Council on the matter, but without success. In 1930 a poll was taken, and there was an overwhelming vote in favour of direct representation of the Members—6,536 in favour, and only 156 against.

Dr. P. B. SPURGIN seconded the resolution. He asked the Fellows whether, if they had relations who had contributed very largely to their exchequer, and who were suffering from some comparatively small ailment which required only a little surgical interference, they would hesitate to perform the operation in question. He thought it should be performed, as it was necessary to the good health, happiness, and contentment of the "patient." A large number of Members of the College had attained important positions in public life and would not be unworthy representatives of their profession if the Council would admit one or two or even three of them to its table. They would add lustre to the Council and increase its dignity in every respect.

The resolution was supported by Dr. REDMOND ROCHE and Dr. H. E. WATKINS, who expressed the view that the training of medical students could be greatly improved if there were general practitioners of standing on the Council to assist the Fellows in their deliberations on the regulations for such training.

The resolution was carried by 26 votes to 1, and the meeting ended.

[1] See *British Medical Journal*, November 3rd, 1934, p. 822.

The Thomas Vicary Lecture will be delivered by Professor William Wright at the College on Thursday, December 6th, at 5 p.m. His subject will be "Galen on the Eye."

Mr. Victor Bonney will deliver the Bradshaw Lecture at the College on Thursday, December 13th, at 5 p.m., on the subject of "The Functional Derangement of the Intestine that follows Abdominal Operations."

UNIVERSITY OF CAMBRIDGE

At a congregation held on November 17th the following medical degrees were conferred:

M.D.—*R. B. Mayfield, R. W. Butler.
M.B., B.Chir.—P. H. R. Ghey, B. S. Jones, J. C. G. Anderton, R. Q. Parkes.
M.B.—A. M. Barrett.

* By proxy.

Medico-Legal

MEDICAL MAN'S LIBEL ACTION SETTLED

On November 8th a settlement was announced of a libel action brought by Dr. David Nabarro, F.R.C.P., director of the pathological department of the Hospital for Sick Children, Great Ormond Street, against Messrs. Virtue & Co. Ltd., of Thavies Inn, E.C., the publishers of a book entitled *The Milk Trade and Dairy Industry*, and Mr. C. Raison, the editor of the book.

Mr. C. B. Guthrie (for Mr. Cartwright Sharp, K.C.) for Dr. Nabarro said that the case had been settled on agreed terms.

In the month of January, 1930, Dr. Nabarro jointly with one Mr. J. O. Hickman, a barrister-at-law, had written an article called "The Irradiation of Milk," which was published in the *Lancet*. The defendants, Virtue & Co. Ltd., in August, 1933, published a book called *The Milk Trade and Dairy Industry*, and in this book, which was edited by the defendant Raison (who had died since the action was brought), they included a chapter headed "Irradiated Milk," purporting to have been written by the plaintiff and Mr. Hickman. The chapter in fact was a truncated version of the article which had appeared in the *Lancet* more than three and a half years earlier, and the publication of it and the use of Dr. Nabarro's name in connexion therewith were entirely unauthorized.

Dr. Nabarro considered that the user of his name in a trade book on a technical subject might do him considerable harm in his profession, and the inclusion of his name as a contributor in the book might create the impression that he was the type of person who would disobey the rules of the General Medical Council with regard to advertising in order to make money out of journalism or out of the milk trade. Moreover, the investigation of the subject of irradiated milk was one which had made considerable progress since the time the article was originally written for the *Lancet* in January, 1930, so that at the time of publication of the book the contents of the chapter were stale and out of date. Dr. Nabarro's position in the profession left him no alternative but to bring an action to restrain the further publication of the book and for libel. Messrs. Virtue & Co. Ltd., immediately the matter was brought to their notice, consented to an injunction and deleted the offending chapter from their book. They further had agreed through their counsel to apologize to Dr. Nabarro for the inconvenience they had caused him by their action, and to pay him an agreed sum for damages and costs.

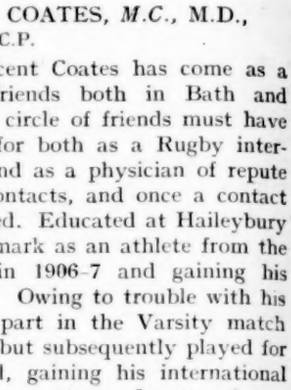
Mr. Herbert Malone, for the defendants, said that his clients very much regretted that Dr. Nabarro had been put to any inconvenience through any action of theirs, but they were under the impression that the editor, the late Mr. Raison, had obtained all necessary consents to the publication of articles in the book. They appreciated that the matter might have led persons to believe that Dr. Nabarro had been guilty of unprofessional conduct, and they realized the harm that might have been done to him thereby in his professional status. They had done what they could to remedy the damage immediately the matter was brought to their notice, and they desired through him to tender to Dr. Nabarro in open court their unqualified apology for their error.

Mr. Justice Swift, in allowing the record to be withdrawn, said that he was pleased the parties had come to an amicable settlement, and that Dr. Nabarro left the court without any aspersions on his professional behaviour.

Obituary

VINCENT MIDDLETON COATES, *M.C.*, M.D., M.R.C.P.

The tragic death of Dr. Vincent Coates has come as a great shock to his many friends both in Bath and throughout the country. His circle of friends must have been a peculiarly large one, for both as a Rugby international in his earlier years and as a physician of repute in later life he made many contacts, and once a contact was made a friendship remained. Educated at Haileybury and Cambridge, he made his mark as an athlete from the first, captaining the school in 1906-7 and gaining his Blue in 1907 at the age of 18. Owing to trouble with his knee he was unable to take part in the Varsity match in his later years of residence, but subsequently played for Bath, Somerset, and England, gaining his international cap in 1913 and playing for his county on five occasions.



Dr. Coates qualified in 1915 and immediately joined the R.A.M.C., and, after being awarded the Military Cross in 1916 in France, proceeded to Salonica, where he was in charge of a bacteriological unit, and served there till the end of the war. After some months of post-graduate work, during which he took his M.D.Cambridge, he settled in Bath in 1919, in the house of his grandfather, the late Dr. C. M. Coates, who had attained distinction as a physician in the city in the pre-war period. Later Coates was admitted a Member of the Royal College of Physicians, and became a member of the committee set up by the College for the study of arthritis. From the first he identified himself with the study and treatment of rheumatic diseases, and contributed several articles in various journals dealing with these and cognate matters, and published with L. Delicati a book entitled *Rheumatoid Arthritis and its Treatment*. He was appointed a physician to the Royal Mineral Water Hospital, Bath, in October, 1921, and had been senior physician to that institution since May, 1932. He took a leading part in both national and international societies dealing with rheumatic disease, spa treatment, and hydrology, and had come to be recognized not only as the representative of Bath in these activities, but as one of the chief representatives of Great Britain when these subjects came up for discussion. Coates was, however, not only a specialist in this one branch of medicine, but was an able general physician. Until the hospital was disbanded in 1925, he was specialist in tropical diseases at the Ministry of Pensions Hospital, and served in the same capacity to the medical boards of the South-Western areas. In May, 1921, he was appointed assistant physician to the Royal United Hospital, Bath, and for a short time was on the staff of the Hospital for Women and Children, Bristol. In April, 1934, he succeeded as full physician to the Royal United Hospital, and was already promoting the interests of this hospital with his usual stimulating suggestions for the improvement of its services. He was consulting physician to the Trowbridge and Freshford Hospitals, and cardiological specialist for Wiltshire. At the time of his death he was president of the Bath Clinical Society and a Fellow of the Royal Society of Medicine and of the Medical Society of London.

At the Annual Meeting of the British Medical Association held in Bath in 1925 Coates was secretary of the Section of Diseases of Children, and had served on various occasions on the executive committee of the local Division. He had been chairman of the Spa Subcommittee of the Division, and was one of their representatives on the Spa Committee of the city council. He was always appreciative of the desirability of the closest co-operation between the Association's central activities and the local profession in hospital and other matters, and was a keen supporter and upholder of its various policies.

With all these public activities he had built up a large consulting practice chiefly devoted to the rheumatic group of diseases. His kindliness and ability will be sadly missed by a host of patients, both rich and poor alike, in all parts of the country, for Coates never spared himself when once he had put his hand to whatever roused his enthusiasm, and his energy was extraordinary. With all this hard work and widespread activity he had time to go out of his way to perform those thoughtful and kindly actions which are the gems of human intercourse in all spheres of life. In all respects he upheld the best traditions of the medical profession, and had regard not only to the physical and mental aspects of his work, but also to the spiritual demands and requirements of his patients. Such an accident befalling such a man at the early age of 45 is a disaster of the first magnitude, and the sympathy of all will go out to his many friends, to his relatives, but especially to his widow.

[The photograph reproduced is by William Clark, Bristol.]

R. H. DICKSON, F.R.C.S.I.

Ophthalmic Surgeon, North Staffordshire Royal Infirmary

By the death of Robert Harper Dickson, on November 9th, at his home, Grindley House, Newcastle-under-Lyme, after a long and tiring illness, North Staffordshire has lost a well-known and much respected citizen, who has left behind him a long record of honourable professional work.

The son of a well-known Irish doctor, Mr. Dickson qualified in Dublin in 1887, and was then house-surgeon for two years at St. Mark's Ophthalmic Hospital. He came into close contact with the teachers of surgery and medicine of a former generation, for whom he had a great admiration. Mr. Dickson came to England and started in general practice in Newcastle, Staffs, eventually taking sole charge of a widespread district. For many years he was a familiar figure driving round this district in his dogcart. His duties entailed attendance at the local workhouse. Here he left behind a record of work well done and of many kind acts to the inmates. An inveterate pipe smoker, he often emptied his large tobacco pouch for the benefit of the patients. His interest lay chiefly towards diseases of the eye, and he eventually gave up general practice and devoted himself entirely to his specialty. He became assistant ophthalmic surgeon to the North Staffs Royal Infirmary, and subsequently proceeded to the senior post. He was also appointed eye surgeon to the Stoke Guardians' Institution and the Orthopaedic Hospital, and was medical referee for eye diseases under the Home Office, in which capacity he had to deal with many cases of miners' nystagmus.

He joined the B.M.A. in April, 1892, and always found time to devote to the affairs of the Association. He had been in turn president of the local Branch and also chairman of the Division. Mr. Dickson was a member of a small committee which successfully revived the North Staffordshire Medical Society, and it is now a flourishing and useful institution in the local medical life. He was one of the first presidents, and gave a most useful address on his work as an eye surgeon. During his forty years in this district his work as a general practitioner and as a specialist brought him into contact with a large number of patients. He never lost interest in anyone he had seen professionally, and he had the faculty of keeping them as friends. For this reason his death is a personal loss and sorrow to a large number of the inhabitants.

Mr. Dickson had a wide sphere of interest outside his professional work, and was a keen and popular member of the Newcastle Rotary Club, of which he had been president, and of the North Staffordshire Field Club. He is survived by his wife and family, of whom there are three sons and two daughters: much sympathy is felt for them in their bereavement. Two of the sons are students of medicine in London.

The death took place, on November 16th, of Dr. JOHN SMITH, who had practised at Kirkcaldy for some forty years. Born in 1855 and educated at Ayr Academy and Edinburgh University, he graduated M.A. at Edinburgh in 1878 and M.B., C.M. in 1881, taking the English conjoint qualification also in 1885, and proceeding to the M.D. in 1886. After graduation he acted as resident surgeon in the wards of Edinburgh Royal Infirmary under the late Professor Annandale, and later in the Edinburgh and Glasgow Maternity Hospitals, and as clinical assistant in the Royal Ophthalmic Hospital at Moorfields. Entering practice at Kirkcaldy in 1894, he became one of the best-known practitioners in Fife, and had been a medical referee under the Workmen's Compensation Act since 1906. He was a Fellow of the Obstetrical Society of Edinburgh and of the Ophthalmological Society of the United Kingdom. Although he was locally well known as a practitioner of medicine, Dr. Smith was more widely celebrated in the world of sport, and was an international Rugby player of great fame. He had played Rugby football since his schooldays, and from 1877 he represented Scotland six times against England and four times against Wales. He was also the founder of Association football at the University of Edinburgh, and after 1884 he took up this form of the game and played in many important matches. In the year 1894 he went to Australia as manager of the Shaw-Shrewsbury British team, and again played Rugby football in that country. On taking up practice in Kirkcaldy, however, he gave up football altogether and took to bowls, golf, and curling, at which he achieved great skill. In bowls he appeared in several international contests, and was vice-president of the Scottish Bowling Association in 1924. Dr. Smith had been a member of the British Medical Association for fifty years.

By a sad coincidence *A Soldier in Science*[1] reached us almost at the same moment as the news of the author's death, at his home in Porto Rico, at the age of 61. Colonel BAILEY KELLY ASHFORD, professor of tropical medicine and mycology at Columbia University, was the son of a professor of surgery and dean of the medical school at Georgetown, who, dying when the boy was but 10, left him with the passion to be a doctor of medicine. How he forged ahead with his programme of active life and research to reach an eminence far beyond his most ambitious dreams is told vivaciously in his book. For it was research that called him as soon as he realized its possibilities. On graduating, therefore, he joined the Army, hoping thus to secure a settled income and adequate spare time, but shortly afterwards war with Spain broke out. He had a brief spell of active service, and then settled down in charge of a hospital near Porto Rico, thus entering, unsuspectingly, upon the drama of his life. A furious hurricane was followed by epidemic anaemia, and the way began to Colonel Ashford's discovery of hookworm infection. The description of the stages in convincing others of the truth of this explanation makes arresting reading, as does also his account of the subsequent founding of the

[1] *A Soldier in Science*. The Autobiography of Bailey K. Ashford. London: George Routledge and Sons, Ltd. 1934. (12s. 6d. net.)

Porto Rico Commission in 1904, which began the first campaign against the disease in the Western hemisphere, and reduced the death rate from this cause by 30 per cent. From this Colonel Ashford turned to uncinariasis, and then, in 1913, to tropical sprue. The late war brought him to France, where he was actively engaged in 1917 and 1918, receiving battle clasps for the Aisne-Marne and Argonne-Meuse and the D.S.M., and being created an honorary C.M.G. The war interfered with his important work in connexion with the Rockefeller Medical Commission in Brazil, and the establishment in that country of a centre for the study of tropical diseases, as the result of what he aptly terms "a reconnaissance," but the work was completed, nevertheless. On his return from Europe Colonel Ashford was called upon to edit the *American Medical History of the War*, when, as he writes, he was all the time impatient to complete his work on sprue and to convert the Institute of Tropical Medicine in Porto Rico into something permanent and worth while. So he insisted on returning, but the "no truce in the Tropics" sent him first to investigate an outbreak of fever in Cuba. He then achieved his ideals, and was hopefully looking forward to fresh exploits when death overtook him. His autobiography, simply narrated without hyperbole, reads like a modern saga—which, in fact, it is. It tells the tale of the still-continuing yet oldest war of all, man's struggle against nature, carried on with the undying hopefulness and determination which enabled humanity in past eras to overcome many physical foes. This story of the life of a pioneer in restoring many thousand sick and apparently dying to full physical efficiency, of an insatiate explorer of the mysteries of disease, and of a great lover of mankind was eminently worth telling, and is excellently told.

We regret to announce the death, at Mundesley Sanatorium, Norfolk, on November 8th, and after an illness of only a few months, of R. H. Morley, M.D., M.R.C.P., aged 30. Dr. Morley was educated at Kingswood School, Bath, and Leeds University, graduating M.B., B.S.Lond. in 1928. He held clinical and pathological appointments at the General Infirmary, Leeds, and then went to London, where he was house-physician at the Brompton Hospital and later house-surgeon at the East London Hospital for Children. After this he went into general practice in Norwich, hoping to get appointed ultimately to the staff of the Jenny Lind Hospital for Children, at which he was clinical assistant at the time of his death. Morley was one of the outstanding students of recent years at Leeds. He was president of the Leeds Students' Union and vice-president of the National Union of Students of Great Britain; he was also a good athlete, representing the university at Rugby football, swimming, and tennis. Though very able, he did not strive after academic honours, but was widely read and possessed a finely critical and original mind. He was keenly interested in art and literature, and had recently written more than one play. He was, moreover, a delightful and stimulating companion, the one above all others one would choose for a holiday. His untimely and unexpected death comes as a great tragedy to his friends, who had foreseen a notable future before him and will deeply feel his loss.

The sudden death occurred, on October 29th, at his home, Hamilton Road, Bangor, Co. Down, of Dr. James C. Nicholson. Bangor mourns his death, for he was a most popular practitioner, and the loss is felt all the more because he apparently had many years of useful work before him. Dr. Nicholson had lived for a time in America, but returned to this country to study medicine both at Belfast and at Edinburgh, obtaining the L.R.C.P. and S. diplomas in 1901 and the F.R.C.S.Ed. two years later. From the time he qualified until 1916 he was attached to the John G. Paton Mission, and had charge of the hospital in Tanna in the New Hebrides. He answered the call for doctors during the war, joining the Australian Army Medical Corps, and saw service in France. On demobilization in 1919 he settled in Bangor, and built for himself a most successful practice. By colleagues and patients alike he was always admired both for skill in his professional work and for uprightness of character: his passing leaves a gap which will take a long time to fill. He was an enthusiastic believer in outdoor sports, and a valued supporter of both Rugby and Association football, being a vice-president of Bangor Rugby Club. He was a member of the British Medical Association and a Fellow of the Ulster Medical Society. His only son, Dr. John C. Nicholson, assisted his father for a time in his large practice. Dr. James Nicholson leaves a widow and four daughters as well as his son.

Dr. A. A. Stewart, who died on November 10th at Northampton, graduated at the Royal University of Ireland in 1893. He entered into general practice at Northampton about forty years ago, and continued his work with marked success practically up to the time of his death. His whole heart was in medicine—so much so that he allowed himself a holiday only with great reluctance, and never had time for recreation. He was greatly esteemed by his patients and a large circle of friends, as was evidenced by the very big congregation at the church service. An old and enthusiastic member of the British Medical Association, he seldom missed the local Branch meetings. He had been an active member of the Local Panel Committee from its inception, and for a number of years up to the time of his death had acted as its treasurer. In 1900 he married Ada, the daughter of James Whyte Stenhouse of Manchester, who, with a son and daughter (both in the medical profession), survives

---

The following well-known foreign medical men have recently died: Dr. Angel Gallardo, rector of the University of Buenos Aires and member of the Academy of Medicine of Buenos Aires, aged 67; Dr. Theodore H. Weisenburg, professor of neurology at the University of Pennsylvania Graduate School of Medicine since 1907, and editor-in-chief of the *Archives of Neurology and Psychiatry* since its foundation in 1919, aged 58; Geh. Med.-Rat Professor Dr. Wilhelm von Starck, for nine years professor of children's diseases and director of the Children's Hospital at Kiel, aged 76; Dr. Albert Fernau, professor of radiology at Vienna, aged 56; Dr. Alfonso Poggi, emeritus professor of surgical pathology at Bologna; Dr. G. Salus, emeritus professor of hygiene at Prague, aged 72; and Dr. W. H. Johnson, professor of orthopaedics at Charlestown, South Carolina.

The Services

The King has conferred the Efficiency Decoration of the Territorial Army on Colonel H. F. Humphreys, O.B.E., M.C., K.H.P., A.D.M.S., 48th (South Midland) Division; Lieut.-Colonel R. A. Broderick, D.S.O., M.C., R.A.M.C.,T.A.; and Major A. C. Haddow, R.A.M.C.,T.A.

NO. 29 GENERAL HOSPITAL

The sixteenth annual reunion dinner of the 29th General Hospital will take place at the Princes Galleries on December 15th, when Lieut.-Colonel S. H. Withers, C.M.G., will preside. Officers are asked to communicate with Captain Percy Groves, Heronfield, Meadowcourt Road, Leicester.

DEATHS IN THE SERVICES

Lieut.-Colonel Ernest Brodribb, R.A.M.C. (ret.), died at Hove on November 10th, aged 61. He was born at Warminster on December 13th, 1872, took the M.R.C.S. and L.R.C.P.Lond. in 1896, and entered the R.A.M.C. as surgeon lieutenant on July 28th, 1897. He became lieutenant-colonel on March 1st, 1915, was placed on half pay on account of ill-health on January 10th, 1917, and retired on January 10th, 1921.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

A new session of Parliament was opened on November 20th by a speech from the Throne, which promised legislation for the future government of India, for the assistance of distressed areas, for shipping, on electricity supply, and for imperial air communications. The paragraphs referring to housing announced that so great a measure of progress had been attained that the Government was able to contemplate the next step in the process of improving the housing conditions of the people. A Bill would accordingly be submitted for preventing overcrowding and making provision for the rehousing of those found to be living in overcrowded conditions. There would also be a similar Bill applying to Scotland. Measures would be introduced, if time permitted, for the control of building development along the main thoroughfares, for providing better housing of the metropolitan police, and other subjects.

Debate on this programme followed in both Houses. In the Commons the Government proposed that the whole time of the House should be taken for Government business. This does not forbid introduction of Bills by private members, but precludes their passage.

Before Parliament was prorogued, on November 16th, the Royal Assent was given to the Betting and Lotteries Act and the Poor Law Act.

National Health Insurance

Sir Hilton Young told Mr. Tinker, on November 14th, that the number of persons in Great Britain who, on December 31st, 1933, were insured under the National Health Insurance Act was approximately 18,481,000. The age distribution of the persons so insured was last ascertained as at December 31st, 1931, and the number of insured men aged between 55 and 60 was then about 799,000.

The Minister told Mr. Buchanan on that day that he had decided to grant the same extension of the period of grace for the redemption of arrears by insured persons as was given last year, and publicity had already been given to this decision in a circular to all approved societies and by notices in the public press.

In an answer to Sir Arnold Wilson, on November 16th, Sir Hilton Young said that out of about 12,000,000 insured men and 6,000,000 insured women, 9,000,000 men and 2,000,000 women were members of approved societies giving dental benefit. The great majority of the societies paid half the cost of treatment.

St. Mary's Hospitals, Manchester, Inquiry

Sir Hilton Young announces that the authorities of St. Mary's Hospitals, Manchester, have concurred in the request by the City Council of Manchester for an inquiry into the death of a patient. The circumstances of this case were so special as to justify an exception to the established rule against publication of the report of the inquiry.

The Ministry of Health subsequently announced that the report of the inquiry into the death of Mrs. Taylor would be sent to the Manchester City Council very soon for publication, and would also be sent to St. Mary's Hospitals.

Fitness for Marriage

In the House of Lords, on November 14th, Lord Kilmaine moved that the marriage laws should be so amended as to make it obligatory for both parties to produce medical certificates of fitness when they came before a minister of religion or the civil authority. He said he had talked over the subject with many medical men, and found general agreement that legislation on the lines he suggested was needed. He proposed that the solemnization of any marriage in this country should be made illegal unless both the contracting parties could furnish medical certificates of fitness to marry and to raise a family. These should be signed by some competent medical authority. The fee for them should be fixed as low as possible, and steps taken to ensure that the answers given were true. He proposed four certificates. "A" would show the parties were perfectly fit to marry and raise a family. "B" would show that for reasons of health delay was advisable, but the parties might present themselves again in three or six months; this would be an important provision in suspected venereal infection. "C" would say the parties could marry without danger to each other, but that it must be a childless marriage. It followed that some kind of birth control must be used for the unfit; he hesitated to say sterilization. Lastly, certificate "D" would prohibit marriage altogether in a case where there would be danger to the parties themselves. Legislation on the lines suggested would also diminish the number of lives spoilt by close in-breeding, which, in isolated communities, often resulted in mentally deficient children. He did not propose that couples should undergo medical examination; that would only be necessary where there was venereal disease. In all other cases it would simply be necessary to answer questions relating to general health and family history.

The Bishop of Norwich feared that, failing to receive any of the certificates suggested, many would form alliances from which children might result. He could not imagine that the certificates could be separated from careful medical examination. Many mental disorders were intermittent in their effects, and he foresaw difficulty in disqualifying for marriage, because their fathers or grandfathers had shown some mental disaffection, people who apparently were perfectly sane. Yet these people, adequate in themselves, might be the ones who could not be trusted to rear families. The Archbishop of Canterbury asked who was to certify; was it to be some State official? How was the private practitioner to take the responsibility except perhaps for the clear-cut certificate "A" or "D"? How was he to take on himself the responsibility of saying, "You must delay," or "I think you must be prepared to render yourself childless." What was the minister of religion to say when certificate "B" or "C" was brought? "Have you delayed long enough?" or "Are you quite sure you have made it impossible for you and your proposed wife to have children?" The recent report on sterilization and kindred subjects merited careful consideration, but he hoped the House would not pass Lord Kilmaine's motion as it stood.

Lord Gage, replying for the Government, said the Ministry of Health regarded the subject as important. There was strong evidence for limiting the right to marriage of the mentally defective. The evidence of the recent report on the sterilization of mental defectives showed the suffering and misery which so often afflicted their children. The Committee on Sterilization had not dealt with the legal marriage of mental defectives, but the Board of Control on several occasions strongly recommended its prohibition. At present mental defectives in institutions were incapable of marriage. Under guardianship the consent of the guardian was required, but if a defective evaded the guardian's consent the marriage was valid. The Departmental Committee on Sterilization did recommend a form of voluntary sterilization, but was also of opinion that any hint of institutions being associated with compulsory sterilization would keep people from going for treatment and induce concealment from medical attendants. The loss of rights of marriage was less severe than sterilization, but any action by the State of that kind might drive underground facts which, in the interest of the State and of the individual, ought to be brought to the notice of the medical profession. To some people of nervous temperament dread of a medical examination would deter from a legal marriage, and it might tend to increase the illegitimate births. He agreed with the Archbishop that a medical certificate based on anything but a medical examination would not be a medical certificate at all. The Minister of Health and his advisers felt there was enough evidence, over a large number of years, to justify their testing public opinion, as they were doing in regard to the reports of the Board of Control and the Committee on Sterilization. The report of that Committee was being considered by institutions and bodies interested. Beyond that the Government could not go for the time being. To go on the lines suggested by Lord Kilmaine without large evidence of public and medical support would be disastrous.

Lord Kilmaine then withdrew his motion. He remarked that any doctor examining people should put down consumption, insanity, venereal disease, or close blood relationship as bars to the production of children.

Compensation for Compulsory Vaccination

Replying to Mr. Groves, on November 15th, Sir HILTON YOUNG stated that his attention had been called to the death of a nurse at Birmingham from vaccination, the operation being imposed by a Sheffield institution as a condition of employment. He referred to the remarks on this subject which were contained in the annual report of the Chief Medical Officer of his Department for 1933. Sir JOHN GILMOUR told Mr. Groves, on the same day, that he could not recommend legislation to extend the Workmen's Compensation Act, 1925, to death or injury due to vaccination where the circumstances were not such as to bring the case within the terms of Section 1 of the Act. This restricts compensation to cases of personal injury by accident arising out of, and in the course of, employment. Mr. Groves suggested that the Act should be amended to put on employers the responsibility for the injurious or fatal result of vaccination performed as a condition of employment

Medical Inspection and Free Milk.—Mr. RAMSBOTHAM told Miss Rathbone, on November 15th, that the Minister of Education was not prepared to withdraw the restriction placed by Circular 1437 upon the freedom of local authorities to give milk or meals free to children on account of their parents' poverty without first requiring a medical inspection. Under any system other than that of medical selection there was a danger of overlooking children who required attention. He attached the highest importance to a close study of defective nutrition and its treatment, and regarded it as in every way advantageous that this part of the work of the school medical service should be linked with the arrangements for provision of meals and milk. Replying further to Miss Rathbone, Mr. Ramsbotham regretted that in the returns supplied to the Board of Education the salaries of school medical officers were not apportioned between the various forms of medical inspection and their other duties. Therefore it was not possible to state the average cost of every special medical inspection and also of every routine inspection of a school child. Asked whether a cost for inspection of 7s. per child was not a large expenditure for the purpose of determining whether a child should receive 2½d. worth of milk, Mr. Ramsbotham said he hoped this would not be grudged in view of the importance of the subject.

Milk-in-Schools Scheme in Scotland.—Mr. SKELTON told Mr. Anstruther-Gray, on November 15th, that the Glasgow education authority had not yet in operation a scheme for the provision of milk under the new milk-in-schools scheme, but a draft scheme had been prepared. When this was in operation about 142,000 children would be included; at present 5,900 children in Glasgow were having milk in schools. Sir GODFREY COLLINS told Mr. Boothby, on November 15th, that the North of Scotland Milk Marketing Board proposed to make arrangements for the supply of milk for schools within the area of its administration. In Aberdeen and district the matter was under consideration by the Milk Marketing Board concerned.

Deaths from Asbestosis.—Replying to Mr. Thorne, on November 15th, Sir JOHN GILMOUR stated that about sixty deaths from asbestosis had been brought to the notice of the Home Office. After investigation all were attributed to exposure incurred previous to the Asbestos Industry Regulations of 1931. The disease usually took years to develop, and the period between commencement and death varied widely. Special inquiry in 1932 as to the risks in warehouse and certain other processes revealed no need for any extension of the regulations. Their effectiveness would continue to be closely watched.

Maternity and Child Welfare Services.—Replying to Miss Cazalet, on November 15th, Sir HILTON YOUNG stated that where there had been a reduction of the amount spent on the maternity and child welfare services the first step was to ascertain the reasons for, and the effect of, the reduction. If there was reason to fear less efficient services, he directed a local investigation and made the necessary representations to the authority concerned. The expenditure of the grant of £5,000,000, which was included in the general Exchequer contribution for each year in the first fixed grant period under the Local Government Act, 1929, was within the discretion of the local authorities. A condition was that they should maintain a reasonable standard of efficiency and progress in the discharge of their public health functions. The policy of the Government was to secure a development of the maternity and child welfare services, and steps had recently again been taken for the purpose.

Welfare of the Blind: Advisory Committee.—Replying to Mr. T. Smith, on November 15th, Sir HILTON YOUNG said that on the Central Advisory Committee for the Welfare of the Blind, in addition to the representative of the National League for the Blind, there was another member closely connected with the League. He could not at present undertake to add to the size of the committee.

Outbreaks of Foot-and-Mouth Disease.—Sir GEORGE BOWYER stated that no general cause had been discovered for the outbreaks of foot-and-mouth disease in six areas of England during November. In no area had the initial cause been traced, but there was no reason to suspect that the outbreaks were caused maliciously.

Medical News

The Sheffield medical dinner will be held at the Royal Victoria Hotel on Thursday, December 6th, at 7.45 p.m., when Lord Dawson will be the chief guest. Applications for tickets (13s. 6d.) should be made to the honorary secretary, Dr. T. E. Gumpert, 331, Fulwood Road, Sheffield, W.

The annual old students' reunion dinner of the London (Royal Free Hospital) School of Medicine for Women will be held on the evening of Thursday, December 6th, at the Savoy Hotel.

The annual dinner of the London Jewish Hospital Medical Society will take place on December 9th at the Trocadero Restaurant, when Sir Humphry Rolleston will be the guest of honour.

A meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, W.C., on Friday, November 30th, at 4 p.m., when Dr. J. M. Greenwood will open a discussion on "Puerperal Fever." At the same place and on the same day the Maternity and Child Welfare Group will meet at 8.30 p.m., when a discussion on "Heredity and Mental Deficiency" will be opened by Dr. J. F. Roberts.

A meeting of the medical section of the British Psychological Society will be held at the Institute of Psycho-Analysis, 36, Gloucester Place, London, W.1, on Wednesday, November 28th, at 8.30 p.m., when a paper on "Femininity and Passivity" will be read by Dr. Sylvia Payne.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on November 27th and December 4th, at 2.30 p.m., and on November 28th and December 5th, at 8.30 p.m., lectures on diet and dietetics. On December 8th, at 3 p.m., Dr. B. T. Parsons-Smith will give a demonstration of heart cases, especially suitable for general practitioners, at the National Temperance Hospital, Hampstead Road, N.W. The following courses of instruction will take place during the last six weeks of the year: infants' diseases at the Infants Hospital, Vincent Square, S.W., from November 26th to December 8th (afternoons only); dermatology at the Blackfriars Skin Hospital, from November 26th to December 8th (afternoons only); special M.R.C.P. course in chest diseases at the Brompton Hospital, Wednesdays and Fridays, at 5 p.m., from December 12th to January 11th (excluding Christmas week). Courses, lectures, etc., arranged by the Fellowship are open only to members.

The offices of the Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England, at the Examination Hall, Queen Square, W.C.1, will be closed on Thursday next, November 29th, on the occasion of the Royal Wedding.

The governing body of St. Mary's Hospital Medical School has decided that after October 1st, 1935, admission to the school will be restricted to students reading for university degrees. In practice this means the Universities of London, Oxford, and Cambridge. In making this announcement the dean, Dr. C. M. Wilson, states that for some years St. Mary's has given preference to students taking university degrees in the selection of its annual entry. It is now prepared to take the further step of committing the school to this policy.

The annual congress of the British Institute of Radiology will be held at Central Hall, Westminster, S.W., on December 5th, 6th, and 7th. In association with the congress an exhibition of *x*-ray apparatus will be held in the same building, under the auspices of the British *x*-ray industry.

The Ministry of Health has issued a Circular (No. 1417) relating to the contents and arrangement of the annual reports of medical officers of health for 1934. The reports this year are of the " ordinary " and not of the " survey " type, the information being limited in the main to recording alterations, improvements, or developments which have taken place during 1934, together with statements of any noteworthy conditions prejudicial to the health of the area and of any special action taken to arouse public interest in the prevention of ill-health. When the boundaries of a district have been materially changed during the twelve months under review, the medical officer of health should comment on any new problems of public health administration created thereby. It is also necessary for the medical officer of health of every district council to report specifically on the administration of the Factory Acts in workshops and workplaces.

The remains of Laennec, which had previously been exhumed in 1846 on the death of his wife, were again exhumed on September 23rd and placed in a leaden coffin in a vault of the church at Ploaré, Brittany, where he died in 1826.

Dr. William Moodie, director of the London Child Guidance Clinic, has been appointed medical consultant to the National Institute's school for mentally retarded blind children at Court Grange, Abbotskerswell.

The following medical men were elected mayors on November 9th: Dr. W. E. Jones (Leamington), Dr. J. V. Shaw (Hereford), and Dr. H. F. Curl (Wokingham).

Dr. I. A. Jackson (Lincoln's Inn) and Dr. J. C. Pickup (Middle Temple) were called to the Bar on November 19th.

Professor Fernand Bezançon has been nominated general secretary of the International Union against Tuberculosis, in the place of the late Professor Léon Bernard.

Dr. Leon Cardenal, professor of surgery at Madrid and president of the last International Congress on Cancer, has been nominated rector of Madrid University.

Dr. Marion, professor of urology in the Paris Faculty of Medicine, has been elected member of the Académie de Médecine in the Section of Surgery.

A Dutch association for cardiology has recently been founded, with Professor K. Wenckebach of Vienna as president of honour and Professor W. Kuenen of Leyden as president.

The well-known psychologist Dr. C. G. Jung of Zurich has presented 200,000 Swiss francs to the Higher Technical School of Zurich to form a fund for the advancement of psycho-analysis and allied studies.

The Belgian Society of Gynaecology and Obstetrics offers a prize of 10,000 Belgian francs, to be awarded every four years, for the best gynaecological or obstetrical work. Further information can be obtained from the secretary, Dr. M. Cheval, 16, Rue Alphonse Mottat, Brussels.

From March 18th to July 14th 3,107 cases of typhus were notified in Chili, exclusive of 101 doubtful cases.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Priapism after Circumcision

" D. R." writes: Could any of your readers give me any help in the following case? A little boy, aged nearly 5 years, was circumcised when about 3 months old against his father's wish, but by order of the doctor, and the mother wished him to be done. The child was kept by a nurse, but the mother and father noticed, when they kept the child some nights, that immediately on awakening there was an erection. This was when the child was about 2, and this has been noticed since, and the same also when the boy's bladder is full or when he wishes to have a motion. It has caused a lot of unpleasantness, as the father blames the operation for circumcision. It should be stated that the child's father suffered from erections which had nothing to do with sexual excitement, but he was found to have glycosuria, due to renal deficiency, probably congenital. The boy is a normal healthy boy in every way, very intelligent, but the mother is very anxious in case it should lead to masturbation or any other sequel.

Hexyl-resorcin during Lactation

Dr. S. P. Wilson (Wakefield) writes: About two years ago I tried caprokol in a case of cystitis due to *B. coli*. The immediate result was good, but recently the same patient has had a recurrence of symptoms. She is breast-feeding her six-months-old baby. Is the administration of caprokol now likely to affect the milk, either in taste or quality? British Drug Houses Ltd. inform me that as far as they know caprokol is not contraindicated, but the patient is still unwilling to try it at present. I should be glad to hear of experiences bearing on the question.

Income Tax

Replacement of Car

" H. S. F." bought a car in 1925 for £660, but has never claimed the depreciation allowance. In September, 1934, he sold the car for £45 and bought another car for £335. What can he claim?

*** A claim for the cost of replacing a car has to be treated as one to deduct a professional expense; that expense was incurred in 1934, and the claim would therefore affect the assessment for 1935-6 only. The amount is the out-of-pocket cost—that is, £335 − £45 = £290. It will be seen that on this basis " H. S. F." loses the allowance for half the original cost of the old car, and it would have paid him much better to claim yearly " depreciation," plus the obsolescence allowance, on replacement being made. He can, however, put in a six years' claim now under Section 24 (1) of the Finance Act, 1923; this

is probably his best course, but possibly it might be advisable to have the assistance of an accountant with that claim.

Interest Paid out of Profits

"R. C." puts the following query. A lends B £1,000 for the purchase of a practice on which B pays £50 per annum interest, and that sum is included in the assessed profits of the practice. Does A also pay tax on the £50?

⁂ B pays tax on the £50 (at full standard rate) as part of the profits of the practice. When he makes payments to A he is entitled to deduct tax, so that a quarterly payment would be £12 10s. less £2 16s. 3d. (tax at 4s. 6d. in the £)—that is, £9 13s. 9d. net. Thus ultimately the tax is borne by A, who, of course, is not assessable for that item of income. If B omits to deduct tax, A is still not assessable.

M.O.H.—Use of Residence

"W. S. H." is M.O.H. under a local authority. He is provided with office accommodation at the council offices and with a telephone at his private residence. Occasionally visitors call at the residence outside office hours. Do these facts justify any claim to deduct a part of the rent, etc., of the residence?

⁂ We fear not. To be deductible from the emoluments of employment expenses must be incurred wholly, exclusively, and necessarily in carrying out the duties of the appointment, and "W. S. H." would probably be unable to convince the authorities that his residential expenses are increased by the installation of the telephone or the occasional calls of visitors on business.

LETTERS, NOTES, ETC.

Metal Cider Taps and Lead Poisoning

Dr. H. H. MOYLE (Stalbridge, Dorset) writes: In a case of lead poisoning in a patient of mine, a mason with nothing whatever to do with lead, I was at a loss as to the cause, for the usual channels were negative. The solution is as follows. The man, of very temperate habits and the only one in the house to take anything at all, used to have a glass of cider at night, sometimes missing a night or so. On examining the tap which he brought up for my inspection I found it to be one of the usual combination wood-and-metal type, and the metal was lead, the key and four small brads being of other metal. Malic acid acts very quickly on lead, and it seems there should be some ban on this type of article for use with cider or other drinks liable to act and cause trouble. The ironmonger from whom the tap was obtained said he had sold lots of these taps and had, in fact, supplied the farmer from whom my patient had obtained his supply. At this time of the year, when supplies of cider are being taken in after cider-making is over, it does seem that this tap may be the cause of no little trouble.

Calcium Lactate as a Muscle Tonic

Dr. G. P. BARFF (Holyhead) refers to a previous letter of his, published in the *Journal* of March 9th, 1929, on the above subject, and describes the case of an ex-athlete, aged 73, who sustained a remarkable improvement in his muscular development and tone as a result of calcium lactate therapy. He writes: I am of opinion that the constructive changes brought about in muscular metabolism resulted from prominent articles of his (the patient's) spare and regular diet containing synthetic products of human milk, or products similar to those formed by the suckling infant during the course of infantile digestion. He adds: I see no reason why the shrinkage of muscular tissue, usually associated with the last stage of life, should not be eliminated by reconstructive measures taken in time. Further particulars can be supplied to anyone interested, on application to Dr. Barff, Trigfa, Four Mile Bridge, Holyhead.

Fractured Spine Caused by Strain

Dr. ALFRED A. MASSER (Penistone) writes: The following case of fractured spine following a sudden muscular strain may prove of some interest to your readers. The patient, aged 47 years, was employed as a clerk till April, 1932, prior to which date there was no history of any injury whatsoever. One morning during that month he was called upon to help unload some heavy bags of money from a taxi outside the office. While lifting a particularly heavy bag from the ground, he suddenly felt something snap in his back, and collapsed on the floor. He says that he felt the use go out of his limbs below the waist for a few moments, but this passed off, though he still complained of a severe pain in the lumbar region of the spine. After resting for a little while in the office he was able to travel home by bus unattended, having fastened his belt firmly round his waist. He continued in bed for three weeks, and after another month's convalescence he returned to work. He continued his employment for twelve months, apparently in good health, except for occasional pain in the lumbar region and a jarring sensation down the spine on walking downhill. In view of the persistence of the pain he sought medical advice, and on *x*-ray examination a fracture of the body of the third lumbar vertebra was reported by the radiologist. The nature of the accident as the cause of a fractured spine, and his ability to travel home by bus shortly after it had occurred, appear very unusual, and his continuation at work for twelve months with an ununited fracture of the spine seems worthy of note.

Identification of Glass by Ultra-violet Rays

Dr. FRANK W. MARTIN (Forensic Medicine Department, Glasgow University) writes: Samples of glass, all similar to the naked eye, when exposed to filtered ultra-violet light sometimes show great variability in the colour of the fluorescence. Symons (*Police Journal*, vol. iii, No. 2) has drawn attention to the fact that glass may be identified by exposure to filtered ultra-violet light. I was recently able to prove the accuracy of this statement. In a "smash-and-grab" raid in a large city some time ago a man was arrested for breaking the window of a public-house and stealing a bottle of whisky. On the shoulder of his jacket were two small splinters of glass. The writer was asked by the police to try to identify these splinters of glass with glass from the public-house window. The window in question was made up of two kinds of glass, clear and frosted. Samples were obtained of both, and these, along with a large variety of pieces of glass unconnected with the scene of the raid, were submitted to the fluorescence test, and the result compared with the fluorescence of the splinters on the accused's jacket. From the fluorescence colour exhibited it was possible to state that one of the samples from the public-house window and the two splinters were of the same make. While it is not claimed that this is absolute identification, it was accepted in court as good presumptive evidence.

Prevention of "Steaming" Glass

Dr. J. ROLAND MURDOCH (Liverpool) writes: A preparation, "Cee-all" (anti-steam), has recently appeared on the market for use in keeping motor-car mirrors and screens perfectly clear in fog or rain. I have found it of service when applied to laryngeal mirrors, as it saves time in dispensing with the necessity for heating the mirror before use. It may be of service to surgeons who wear eyeglasses in the operating theatre. One drop of this preparation is smeared over the glass and afterwards polished off with a clean dry cloth. One application lasts for many days. The label bears the name of O. R. Rowlands, chemist, Wallasey, who is, I presume, the maker.

Corrigendum

The writer of the appreciation of Dr. David Inglis (November 17th, p. 923) misquoted Horace. The passage (Odes, 2, 16, 26) should read: . . . *amara lento temperat risu*. The learned correspondent who points this out suggests that "an apology to the genial shade of Horace is indicated"—and we agree.

Messrs. H. K. Lewis and Co., Ltd., submit a specimen of their serviceable ante-natal record card for use with the card index system, size 8 in. by 5 in. Their new "systems" catalogue, also received, describes the many different applications of card indexes and vertical filing systems of use to medical practitioners for book-keeping, case-taking, etc. A very full range of cabinets and cards is offered.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 52, 53, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 268.